

## VIRTUAL ROOM 3 POSTERS

Faculty Moderators: Fatemeh Rajaii, MD, PhD & Fasika A. Woreta, MD, MPH

### Poster 1: The State of Diversity and Diversity Training in U.S. Residency Programs

**Authors:** Ugochi T. Aguwa, Jiangxia Wang, MS, Fasika Woreta, MD, MPH, Jeff Pettey, MD, MBA, Grace Sun, MD, Stacy Pineles, MD, MS, Divya Srikumaran, MD

**Background:** Residency programs must prepare residents to serve the racially and ethnically diverse U.S. population by training a diverse, culturally competent, and unbiased workforce.

**Aim:** Examine the state of diversity of residency programs across all specialties and their implementation of diversity training initiatives (i.e. unconscious bias training, cultural competency training, and education about health disparities).

**Methods:** Anonymous survey of residency program leadership regarding program demographics, underrepresented minority (URM) recruitment initiatives, and attitudes toward diversity training. The survey was distributed to residency program leadership of the Association of University Professors of Ophthalmology (AUPO), Johns Hopkins Medicine, University of Utah, Weill Cornell Medicine, and the University of California, Los Angeles.

**Results:** Our survey response rate was ~31%. Fifty-two percent of responses were from ophthalmology leadership and 48% were from other specialties. The presence of  $\geq 1$  URM resident differed significantly by the total number of clinical faculty in the department ( $p=0.027$ ) and the total number of residents in the program ( $p=0.045$ ). Ninety-two percent of programs utilized strategies to recruit URM applicants. The most common strategies were information sessions/events for URM students (27%) and having a special review of all URM applicants by a separate committee/person (19%). While 91% of residency program leadership believed it was extremely or very important for health professionals to receive formal diversity training, 52% of programs had a formalized diversity education curriculum for trainees and faculty, 10% had one for faculty only, and 3% had one for trainees only. Of all the barriers reported by respondents, the most common were lack of faculty expertise (31%) and lack of curricular time to devote to the initiative (29%).

**Conclusions:** An overwhelming majority of residency leadership believe formal diversity training is essential, yet only 65% of programs have an implemented curriculum for faculty or trainees. The majority of programs face barriers to the implementation of diversity education curricula. As a way forward, shared central resources or diversity education toolkits may provide needed support to formal curricula implementation for residency programs.

### Poster 2: A Mannequin-Based Surgical Simulator for Teaching Margin-Involving Eyelid Laceration Repair: Design, Implementation, and Evaluation

**Authors:** Meleha Ahmad, MD, MSc<sup>1</sup>; Jiawei Zhao, MD<sup>2</sup>; Andrew Fischer, MD<sup>3</sup>; Emily W. Gower, PhD<sup>4</sup>; Roxana Fu, MD<sup>5</sup>; Fasika A. Woreta, MD, MPH<sup>6</sup>; Shannath L. Merbs, MD, PhD<sup>7</sup>

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**Need and Objectives:** Ophthalmology residents are expected to perform complex eyelid laceration repairs with a high degree of autonomy early on in residency; however, no commercially-available simulation models exist to practice the skill. To address this gap, we designed, implemented and evaluated a surgical simulator for margin-involving eyelid laceration repair.

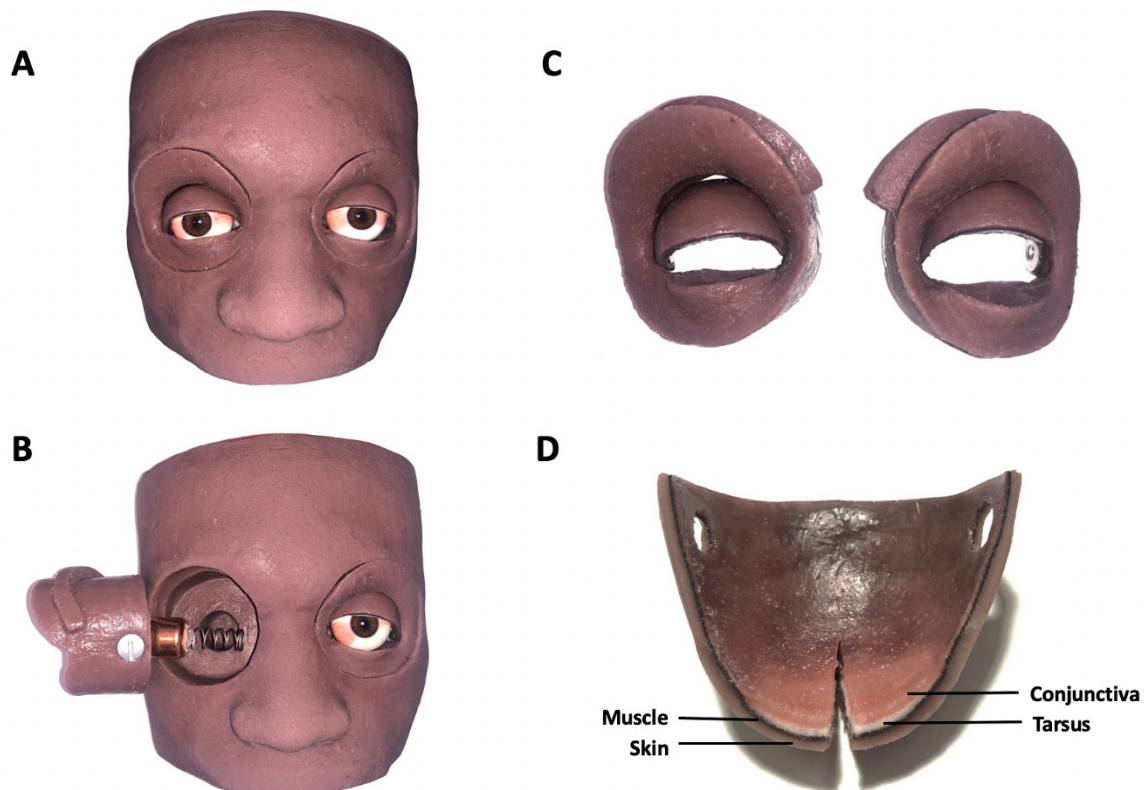
**Setting and Participants:** Nine first-year ophthalmology residents from two academic institutions.

**Description:** A mannequin-based training system previously developed for trichomatous trichiasis surgery with removable orbits and disposable eyelid cartridges was used (Figure 1). Instead of a tapered eyelid margin simulating cicatricial entropion, a normal upper eyelid margin was designed with a square-edge and “gray line,” an important anatomic landmark for laceration repair. Participants attended virtual orientation about basic eyelid anatomy and use of the simulator, receiving written and video-based material. After completing a presurvey, each resident completed an individual, video-recorded practice session using the simulator at their respective institution’s wet lab. Videos were reviewed, and written feedback was provided. Participants were given three weeks to practice using the mannequin, and then each completed a final, video-recorded practice session and a post-survey. Survey questions used a 5-point Likert scale.

**Evaluation:** Prior to the first session, two of nine residents had performed an eyelid laceration repair, and none had performed a margin-involving repair. All residents had practiced suturing on alternative materials, but satisfaction with these methods was poor (average Likert scale 2). Likelihood of using our simulator again was 4, and the majority recommended that the simulator be incorporated into the oculoplastics curriculum. Self-reported comfort level with repair of margin-involving lacerations increased at the completion of the study (Likert 1 vs. 3,  $p=0.02$ ). Blinded analysis of video recordings by two oculoplastics faculty using a standardized grading rubric is underway.

**Lessons Learned:** Our surgical simulator increased comfort level with eyelid margin laceration repair in inexperienced ophthalmology residents. Difficulties identified by users include occasional structural issues with placement of the tarsal suture, as well as cost of the eyelid cartridge (\$12.50/cartridge), which will be addressed in future iterations. Furthermore, our simulator could be modified for teaching eyelid or facial surgery to trainees in other subspecialties.

**Figure 1:** Mannequin (A) with removable orbits (B-C) and eyelid cartridges (D).



### Poster 3: Racial and Gender Diversity Within U.S. Residencies: Trends from 2011 to 2019

**Authors:** Ugochi T. Aguwa, Chibuzo J. Aguwa, MPH, MHS, Gabriel I. Onor, Divya Srikumaran, MD, Joseph Canner, MHS, O'Rese J. Knight, MD, Fasika Woreta, MD, MPH

**Background:** The proportions of underrepresented minorities (URMs) and women in medicine lag behind those of the U.S. population. Although URMs comprise ~33% of the population, ~13% of physicians are URM. There are also disparities in gender among physicians, with men outnumbering women by ~28%. While previous studies have examined diversity trends within select specialties, there is a dearth of literature studying trends across all specialties.

**Aims:** Investigate trends in the proportion of URM & women residents across all specialties, and demonstrate differences in URM & women composition in surgical vs. non-surgical specialties.

**Methods:** Data on the proportion of URM and female residents in all specialties was extracted from the Accreditation Council for Graduate Medical Education (ACGME) yearly reports. Linear trends were analyzed with the chi-square test for trend.

**Results:** There was a statistically significant decline in the proportion of URMs in surgical specialties (chi-squared trend % change [ $\Delta\%$ ] -0.149, 95% confidence interval [CI] -0.206 to -0.091), a significant increase in the proportion of URMs in non-surgical specialties ( $\Delta\%$  0.081, 95% CI 0.049 to 0.123), and a significant increase in the proportion of female residents in surgical specialties ( $\Delta\%$  0.337, 95% CI 0.240 to 0.433). Plastic Surgery and Integrated Plastic Surgery experienced the largest percent increase in URM and women respectively: ( $\Delta\%$  1.135, 95% CI 0.597 to 1.674), ( $\Delta\%$  1.063, 95% CI 0.454 to 1.672). Conversely, Obstetrics & Gynecology and Pathology experienced the largest percent decrease in URMs and women respectively: ( $\Delta\%$  -0.419, 95% CI -0.567 to -0.271), ( $\Delta\%$  -0.693, 95% CI -1.005 to -0.381).

**Conclusions:** Our study emphasizes the need to increase the recruitment of URMs and women in medicine, especially in surgical specialties. Findings from this study can inform much-needed initiatives to address barriers to entry for diverse applicants within specialties that lack diversity or have shown minimal improvement over time.

### Poster 4: Applicant selection process for residency interviews: a pilot survey

**Authors:** Alex T. Pham, Michael J. Fliotsos, Joseph Cofrancesco Jr., Divya Srikumaran, Sidra Zafar, Fasika A. Woreta

**Background:** Though the resident selection process has been well described; how programs determine which applicants are granted interviews is not. The methods employed for interview selection is likely to differ by specialty and program. Describing current selection practices may provide valuable information for improving the overall resident selection process.

**Aim:** To identify methods residency programs use to determine who receives an interview invitation.

**Method:** An online survey was distributed to all residency program directors at the Johns Hopkins University School of Medicine. Questionnaire items consisted of multiple choice and free text response related to program director demographics, residency program characteristics, and the process used to invite applicants for an interview. Interview selection criteria was determined with a 5-point Likert scale. Descriptive statistics identified possible trends across different residency programs.

**Results:** The overall response rate was 79% (19/24). Many residency programs utilize a distinct screening committee (55%). Within those committees, 27% included non-faculty, non-fellow, or non-resident members. In most programs, the responsibility of reviewing all applications is shared (55%) and utilize a standardized rubric (60%). The majority (79%) have multiple independent reviewers for each application (mean number of reviewers  $2.4 \pm SD 1.1$ ; range 1-5). A common trend is that each application is initially evaluated by a pair of reviewers using a three-point scale (no interview, maybe, definite interview). Across different residencies, the program director (45%), program director conjointly with another faculty (35%), or a screening committee (20%) ultimately decides who receives an interview. The most important factors, considered on a 5-point Likert-scale, were grades in rotations of the application field ( $4.32 \pm 1.03$ ) and the Medical Student Performance Evaluation ( $4.05 \pm 0.83$ ).

**Conclusion:** The most prevalent method of selecting interview candidates is through a separate screening committee in which each faculty member is assigned to evaluate a subset of the total

applicants based on a standardized scoring system. Future work will enroll other academic institutions and residency programs across the country to improve generalizability and determine best practices for interview selection.

### **Poster 5: Perspectives of Resident and Attending Physicians on Common Ethical Dilemmas in Research**

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**Background:** Residents are often required to complete research during their residency training in collaboration with attending physicians, which can present ethical dilemmas for both parties.

**Aim:** Our goal was to assess how resident and attending physicians viewed and assessed commonly encountered ethical scenarios that may occur during resident research projects.

**Methods:** A online survey was distributed to 8 residency programs, 4 of which were military-affiliated and 4 of which were academic programs. A series of 14 ethically controversial vignettes was developed based on commonly encountered contentious scenarios pertaining to research activity in ophthalmology residency as described previously.<sup>1-4</sup> After each ethical scenario was presented, the respondents answered using a Likert scale whether they thought those in the situation acted ethically. The scenarios pertained to commitment toward mentoring relationships (3 questions), order of and inclusion in authorship lists (3 questions), honorary and ghost authorship (6 questions), and team dynamics and collaboration (2 questions).

**Results:** The overall response rate was 28.9% (63/218). Of 63 respondents, 25 (39.7%) were residents and 38 (60.3%) were attending physicians; among attending ophthalmologists, 5 were <5 years from residency graduation (13.2%), 11 were 5-10 years from residency graduation (17.5%), while 22 (57.9%) reported being 10+ years from residency graduation. 58.7% (n=37) identified as Caucasian, 22.2% (n=14) as Asian, 3.2% (n=2) as African American, 1.6% (n=1) as Hispanic, and 6.35% (n=4) as other race/ethnicity. Respondents primarily identified as male (n=42, 68.3%). Respondents were most likely to identify ghost and honorary authorship situations as unethical (51.1% of responses) and other authorship scenarios (such as involving the order of authors) as generally ethical (36.0% of responses). Although residents were slightly more likely to report unethical behavior than attending ophthalmologists (54.0% vs 49.3% of responses), these results were not significantly different (p=0.12).

**Conclusions:** Resident and attending physicians provided varying assessments of commonly encountered ethical scenarios in ophthalmology research. There is a need for more prescriptive guidelines for authorship and mentorship ethics at all training levels to ensure consistency, fairness, and integrity of research.

### **Poster 6: Demographics and Use Patterns of Pre-Ophtho.com: A Near-peer Resource for Ophthalmology-interested Medical Students**

**Authors:** John T. Goté, MS, Department of Ophthalmology, Eastern Virginia Medical School, Norfolk, Virginia; Patrick Commiskey, MD, UPMC Eye Center, University of Pittsburgh, Pittsburgh, PA

**Needs and Objectives:** The website Pre-Ophtho.com was published in 2017 as a near-peer selection of resources, books, podcasts, apps, and residency match advice for medical students interested in developing a career in Ophthalmology. Near-peer is a concept whereby learners are taught from peers who are only a few years ahead in training. The purpose of our study is to characterize Pre-Ophtho.com's user demographics and utilization patterns over the past three years, and draw conclusions about how it may better serve medical students interested in ophthalmology.

**Setting and Participants:** Google Analytics was used to track user behavior, acquisition, and demographics.

**Description:** Acquisition was ranked based on the total number of sessions within the date range of the

website's launch (April 17th, 2017) to the time of analysis (June 27th, 2020). Behavior was noted based on the average duration per session. Other parameters such as technologies used, unique pageviews, bounce rate, organic search queries, and channels for establishing a session were also investigated.

**Evaluation:** Since launching, the site has been accessed 16,069 times with 8,013 sessions. The user base consists of 6,182 users from 126 countries and all 50 states, with 59.2% falling between the ages of 25-34 and 61.8% being male. The majority of sessions occurred in the US (59.6%). Apart from the landing page (2,665 unique pageviews), the most popular page was the Match tab with 1,142 unique pageviews and an average time of 1:48 minutes spent viewing the resource.

**Lessons Learned:** Based on three years of website analytics, the match process is an important consideration driving users to the site. Though more sessions occurred via the Match resources tab (1,142 vs 1,107 sessions), the average duration of minutes spent on a page was higher for the Podcast resources tab (2:24 vs 1:48 minutes). Interestingly, despite no mention of "Anki" on the website, "anki ophthalmology" and "ophthalmology anki deck" were two of the top 10 organic search queries that directed traffic to the site. Future updates will address both of these growing areas of interest.

## Poster 7: Single-Blind and Double-Blind Peer Review: Effects on National Representation

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**Background:** Significant controversy exists regarding the benefits of double-blind peer review compared to single-blind peer review.

**Aim:** Given the importance of peer-review in the dissemination of scientific information in our field, we aim to conduct a cross-sectional study assess whether the type of peer-review (single-blinded vs double-blinded) has an impact on nationality representation in journals.

**Methods:** A cross-sectional study analyzing the top ten nationalities contributing to the number of articles across 16 ophthalmology journals.

**Results:** There was no significant difference in the percentage of articles published from the journal's country of origin between the top single-blind journals and top double-blind journals (SB= 42.0%, DB = 26.6%,  $p=0.49$ ) but there was a significant difference between the percentage of articles from the US (SB=48.0%, DB=22.8%,  $p=0.02$ ). However, when assessing the top 8 double-blind journals matched with single-blind journals of a similar impact factor for both country of origin (SB =38.0%, DB =26.6%,  $p=0.43$ ) and articles from the US (SB=35.0%, DB=22.8%,  $p=0.21$ ). The countries that most commonly made the top ten lists for highest number of articles were the US ( $n=16$ , 100%) and England ( $n=16$ , 100%). This held true even for journals established outside the United States (US=11/12, England=11/12).

**Conclusions:** There was no statistically significant difference in country-of-origin representation between single-blind journals and double-blind journals. However, higher income countries contributed most often to the journals studied even among journals based outside the US.

## Poster 8: Self-Reported Social Media Use Among Ophthalmology Residents

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**Background:** From networking with colleagues and disseminating knowledge, to building professional recognition and communicating with patients, a trainee's online presence may greatly impact their career trajectory.

**Aim:** To assess ophthalmology trainees' self-reported use of and attitudes toward social media.

**Methods:** An online survey was distributed by email to current ophthalmology trainees who applied for ophthalmology residency to Bascom Palmer Eye Institute between September 2016 and January 2020. Responses were accepted between October 25, 2020 and November 8, 2020. Data collected included demographics, attitudes toward social media, and patient-physician interactions.

**Results:** Of 1688 email recipients, the survey was filled by 208 ophthalmology trainees (12.3%). Nearly all trainees reported using social media for personal purposes (92.3%) while less than half used social media for professional purposes (43.4%). There was mixed sentiment regarding the impact of social media on the patient-physician relationship, with the majority feeling that it challenges a physician's authority (55.2%), but also empowers the patient (57.5%) and encourages shared care (92.8%). Twenty-five percent of trainees have reviewed professional social media guidelines, and most rated the quality of medical information on social media as "poor" (60.9%). With regards to patient-trainee interactions over social media, there were low rates of trainees looking up patients (13.8%), providing their account information to patients (1.5%), responding to patient messages (2.6%), following patients' accounts (2.6%), and being followed by patients (2.6%).

**Conclusion:** The majority of ophthalmology trainees are active on social media. As these trainees graduate and enter practice, ophthalmology will likely see a rise in the use of social media. Training programs should consider formal social media guideline education.

## Poster 9: Prevalence of incivility reported by trainees during interdepartmental consultations at an academic medical center

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**Background:** Though the literature describes incivility in the common workplace<sup>1</sup> and the field of nursing,<sup>2</sup> little is known about its prevalence among medical residents.<sup>3</sup> As incivility is linked to adverse effects in patient care and healthcare worker wellbeing,<sup>4</sup> further study on the prevalence of incivility during the formative years of residency training is warranted.

**Aim:** To assess incivility between emergency medicine (EM) and ophthalmology residents during patient consultations.

**Methods:** We administered validated surveys measuring civility and respect (CREW Civility Scale) and incivility (Workplace Incivility Scale) to ophthalmology and EM residents at our institution.

**Results:** Equal percentages of ophthalmology (13/15, 86.7%) and EM (42/48, 87.5%) residents participated ( $p=0.90$ ), with overall response rate of 55/63 (87.3%). Most residents (47/55, 85.5%) reported some degree of incivility during urgent consultations between ophthalmology and EM residents. Among EM residents surveyed, incivility was identified as occurring most often during consultations with neurosurgery (30.0%), urology (16.8%), general surgery (8.9%), ophthalmology (8.0%), and ENT (8.0%). All ophthalmology residents reported incivility, compared to 80.9% of EM

residents ( $p=0.03$ ). Most ophthalmology (12/13, 92.3%) and EM residents (32/41, 78.0%) reported that the quality of communication between ophthalmology and EM residents was equal, better, or much better than between residents from other specialties with whom they typically interact. Incivilities typically occurred during routine (non-urgent) consults (68.1%) or requests for arrangement of inpatient admissions (11.6%). Residents most commonly reported the following uncivil behaviors: when the other party paid little attention to their statements or opinions (reported by 80% of residents) or doubted their judgement on a matter over which they had responsibility (74.5%). Residents most often attributed incivility in the ED to stress (30.9%), loss of empathy/burnout (25.2%), or attempts to shift responsibility to another party (23.7%). The proportion of women overall reporting some degree of incivility (100%) was statistically higher than the proportion of men reporting some degree of incivility (77.4%,  $p=0.03$ ).

**Conclusions:** Incivility during interdepartmental consultations is commonly reported by physicians-in-training, occurs more often between EM and surgical subspecialty residents, and is more commonly reported by women. Given its associations with adverse outcomes, early interventions to decrease incivility are warranted.