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MEDICINE

**OREF MID-ATLANTIC REGION
RESIDENT RESEARCH SYMPOSIUM**

Monday, September 28, 2026

University of Maryland
SMC Campus Center
621 W. Lombard Street
Elm Room 208A, 2nd Floor
Baltimore, MD 21201

Co-Hosted By:

R. Frank Henn, MD
Chairman
Department of Orthopaedic Surgery
University of Maryland

James R. Ficke, MD
Chairman
Department of Orthopaedic Surgery
Johns Hopkins University

Table of Contents

Resident Research Symposium Summary Agenda	5
Keynote Speaker	7
Judges.....	9
Detailed Agenda	11
Abstracts	15
Sponsors	41
OREF Resident Research Opportunities.....	43
2025 OREF Resident Research Symposium Winners.....	45

About OREF:

The Orthopaedic Research and Education Foundation (OREF) is a charitable 501(c)(3) organization committed to improving lives by supporting excellence in orthopaedic research through its grant funding and research education programs. As an independent nonprofit, OREF strives to improve clinical care and patient outcomes by advancing innovative research, developing new investigators and uniting the orthopaedic community in promoting musculoskeletal health.

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**OREF MID-ATLANTIC REGION RESIDENT RESEARCH SYMPOSIUM
SUMMARY AGENDA
Monday, September 28, 2026**

12 noon – 12:45 p.m.	Registration and Lunch University of Maryland SMC Campus Center 621 W. Lombard Street Elm Room 208A, 2 nd Floor Baltimore, MD 21201
12:45 p.m. – 12:50 p.m.	Welcome and Introductions R. Frank Henn III, MD Chairman Department of Orthopaedic Surgery University of Maryland
12:50 p.m. – 1:00 p.m.	OREF Welcome Deborah Cummins, PhD Vice President Grants and Research Orthopaedic Research and Education Foundation
1:00 p.m. -1:34 p.m.	Session I – Resident Research Presentations & Discussion Moderator: R. Frank Henn III, MD Spine
1:34 p.m. – 2:00 p.m.	Session II – Resident Research Presentations & Discussion Moderator: James R. Ficke, MD Basic Science, Education and Professional Issues
2:00 p.m. – 2:10 p.m.	Break – <i>please submit your scores from Sessions I and II to OREF Staff</i>
2:10 p.m. – 2:44 p.m.	Session III – Resident Research Presentations & Discussion Moderator: Sean Meredith, MD Sports
2:44 p.m. – 3:10 p.m.	Session IV – Resident Research Presentations and Discussion Moderator: Dawn LaPorte, MD Hand and Upper Extremity
3:10 p.m. – 3:20 p.m.	Break – <i>please submit your scores from Sessions III and IV to OREF staff</i>
3:20 p.m. – 3:50 p.m.	Session V – Resident Research Presentations and Discussion Moderator: Natalie Danna, MD Total Joint and Foot & Ankle
3:50 p.m. – 4:00 p.m.	Break – <i>please submit your scores from session V to OREF staff</i>

**OREF MID-ATLANTIC REGION RESIDENT RESEARCH SYMPOSIUM
SUMMARY AGENDA (Continued)
Monday, September 28, 2026**

4:00 p.m. – 4:03 p.m.	Introduction of Keynote Speaker
4:03 p.m.- 4:33 p.m.	Keynote Speaker “Do We Really Know Who Has Compartment Syndrome?” Robert V. O’Toole, MD Department of Bioengineering University of Maryland
4:33 p.m. – 4:48 p.m.	Keynote Question and Answer
4:48 p.m. – 5:00 p.m.	Closing Remarks and Awards Presentation
5:00 p.m. – 6:00 p.m.	Reception

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KEYNOTE SPEAKER



Robert V. O'Toole, MD

**Adjunct Assistant Professor
Department of Bioengineering
University of Maryland
Professor of Orthopaedics with tenure and
The Hansjorg Wyss Medical Foundation Professor of Orthopaedic Trauma
University of Maryland School of Medicine**

Dr. Robert O'Toole received his Bachelor of Science degree in mechanical engineering from Carnegie Mellon University, an MS in mechanical engineering from Stanford University, and an MD degree from Harvard Medical School. He completed his residency at the Harvard Combined Orthopaedic Program and his fellowship in Orthopaedic Traumatology at the R Adams Cowley Shock Trauma Center in the Department of Orthopaedic Surgery within the University of Maryland School of Medicine.

After completing his fellowship, Dr. O'Toole joined the faculty in the Department of Orthopaedics at the University of Maryland School of Medicine. He was promoted to professor with tenure. He serves as the Division Chief of Orthopaedic Trauma, Vice-Chair for Research, and Orthopaedic Trauma Fellowship Director.

In addition to Dr. O'Toole's clinical and educational work, he is a world-renowned clinical researcher. He has led multiple ground-breaking multicenter randomized trials in orthopaedic trauma in close collaboration with the Major Extremity Trauma Research Consortium (METRC). Much of his funded research focuses on mitigating complications such as infection and thromboembolism in orthopaedic trauma patients. He has served as principal investigator on many grants totaling over \$20 million dollars in funding, and he has published 346 peer-reviewed papers. Dr. O'Toole is also a clinical innovator and holds several patents.

Judges and Moderators

Natalie Danna, MD
University of Maryland School of Medicine

James R. Ficke, MD
Johns Hopkins University

R. Frank Henn III, MD
University of Maryland School of Medicine

Dawn LaPorte, MD
Johns Hopkins University

Sean Meredith, MD
University of Maryland School of Medicine

**OREF Mid-Atlantic Region Resident Research Symposium
DETAILED AGENDA
Monday, September 28, 2026**

- 12:00 p.m. – 12:45 p.m. **Registration and Lunch**
University of Maryland
SMC Campus Center
621 W. Lombard Street
Elm Room 208A, 2nd Floor
Baltimore, MD 21201
- 12:45 p.m. – 12:50 p.m. **Welcome and Introductions**
R. Frank Henn III, MD
Chairman
Department of Orthopaedic Surgery
University of Maryland
- 12:50 p.m. – 1:00 p.m. **OREF Welcome**
Deborah Cummins, PhD
Vice President Grants and Research
Orthopaedic Research and Education Foundation
- Session I – Resident Research Presentations and Discussion**
Moderator: R. Frank Henn III, MD
Spine
- 1:00 p.m. – 1:04 p.m. *Persistent Underutilization and Declining Pharmacologic Treatment of Osteoporosis Following Spinal Fragility Fractures: A National Cohort Study*
Theodore Quan, MD, George Washington University
- 1:04 p.m. – 1:08 p.m. *Unplanned Readmission After Pediatric Spinal Deformity Surgery: Rates, Causes, and Associated Factors*
Husni Alasadi, MD, University of Maryland
- 1:08 p.m. – 1:12 p.m. *Sodium-Glucose Cotransporter-2 Inhibitor Exposure and Pseudarthrosis After Multilevel Anterior Cervical Discectomy and Fusion in Type 2 Diabetes*
Evan Honig, MD, University of Maryland
- 1:12 p.m. – 1:16 p.m. *Decompression Alone Versus Decompression with Instrumented Fusion for Lumbar Degenerative Spondylolisthesis: A Systematic Review, Meta-Analysis, and Trial Sequential Analysis of Randomized Controlled Trials*
Usman Zareef, MD, University of Maryland
- 1:16 p.m. – 1:20 p.m. *Reoperation, Complications, and Surgical Site Infection After Minimally Invasive Lumbopelvic Fixation for High-Energy Traumatic Sacral Fractures: A Single-Center Retrospective Review*
Ryan Curto, MD, University of Maryland
- 1:20 p.m. – 1:24 p.m. *Intraoperative Cell Salvage in Thoracolumbar Spinal Deformity: Is it Worthwhile?*
Goutham R. Yalla, MD, Johns Hopkins University
- 1:24 p.m. – 1:34 p.m. **Question and Answer**

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**OREF Mid-Atlantic Region Resident Research Symposium
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Monday, September 28, 2026**

**Session II – Resident Research Presentations and Discussion
Moderator: James R. Ficke, MD
Basic Science, Education and Professional Issues**

- 1:34 p.m. – 1:38 p.m. *Anabolic Effects of Sermorelin in a Rat Model of Postmenopausal Bone Loss*
Catherine Baylor Wickes, MD, Northwell North Shore/Long Island Jewish
- 1:38 p.m. – 1:42 p.m. *The Impact of Geographical Background on the Orthopaedic Surgery Residency Match*
Andrew Kim, MD, Johns Hopkins Medicine
- 1:42 p.m. – 1:46 p.m. *Oocyte Cryopreservation Experiences and Attitudes Among Female Orthopaedic Surgeons*
Alexandra H. Seidenstein, MD, Johns Hopkins University
- 1:46 p.m. – 1:50 p.m. *Malpractice Litigation Trends and Predictors of Outcomes in Elective Total Hip and Total Knee Arthroplasty*
Sukrit Suresh, MD, Johns Hopkins University
- 1:50 p.m. – 2:00 p.m. **Question and Answer**
- 2:00 p.m. – 2:10 p.m. **Break - please submit your scores from Sessions I & II to OREF Staff**

**Session III – Resident Research Presentations and Discussion
Moderator: Sean Meredith, MD
Sports**

- 2:10 p.m. – 2:14 p.m. *Clinical and Magnetic Resonance Imaging Analysis of a Novel Aragonite-Based Scaffold for Articular Cartilage Defects of the Knee*
Rajiv Reddy, MD, The Hospital for Special Surgery
- 2:14 p.m. – 2:18 p.m. *Comparing “Completely Better” Status to Clinically Significant Outcomes Metrics after Hip Arthroscopy*
David Sproul, MD, University of Maryland
- 2:18 p.m. – 2:22 p.m. *Associations Between Elevated PROMIS Depression and Outcomes After Multi-ligament Knee Reconstruction*
Stefan Dabic, MD, University of Maryland
- 2:22 p.m. – 2:26 p.m. *Patient-Reported Outcomes After ACL Reconstruction are Non-Inferior Following Perioperative Opioid Counseling: Secondary Analysis of a Randomized Controlled Trial*
Joseph Blommer, MD, University of Maryland
- 2:26 p.m. – 2:30 p.m. *Athletes Achieve Superior 2-year Patient-Reported Outcomes after Hip Arthroscopy as Compared to Non-Athletes*
Matthew Chrencik, MD, University of Maryland
- 2:30 p.m. – 2:34 p.m. *Measuring What Matters: Continuous Smartphone Mobility Sensing After Anterior Cruciate Ligament Reconstruction*
Luke Pitsenbarger, MD, University of Maryland
- 2:34 p.m. – 2:44 p.m. **Question and Answer**

**OREF Mid-Atlantic Region Resident Research Symposium
DETAILED AGENDA
Monday, September 28, 2026**

**Session IV – Resident Research Presentations & Discussion
Moderator: Dawn LaPorte, MD
Hand, Shoulder and Upper Extremity**

- 2:44 p.m. – 2:48 p.m. *A Geospatial Analysis of Open and Endoscopic Carpal Tunnel Surgery in the United States*
Nicole Liddy, MD, SUNY Downstate Medical Center
- 2:48 p.m. – 2:52 p.m. *Allergy History is Associated with Postoperative Complications following Distal Radius Fracture Open Reduction Internal Fixation*
Lahin Amlani, MD, Johns Hopkins University
- 2:52 p.m. – 2:56 p.m. *Excision of Distal Pole of Scaphoid and Triquetrum to Improve Radiolunate Arthrodesis*
Rafa Rahman, MD, The Hospital for Special Surgery
- 2:56 p.m. – 3:00 p.m. *Rotator Cuff Repair with Concomitant Biceps Tenodesis is Cost-Effective at Mid-Term Follow-up: A Systematic Review and Cost-Effectiveness Analysis*
Rodrigo Saad Berreta, MD, Johns Hopkins University
- 3:00 p.m. – 3:10 p.m. **Question and Answer**
- 3:10 p.m. – 3:20 p.m. **Break – please submit your scores from Sessions III & IV to OREF Staff**

**Session V – Resident Research Presentations & Discussion
Moderator: Natalie Danna, MD
Total Joints and Foot & Ankle**

- 3:20 p.m. – 3:24 p.m. *Pre-Existing Lumbar Spine Pathology and Outcomes After Primary Total Knee Arthroplasty: A Systematic Review and Meta-Analysis*
Aneesh Patankar, MD, University of Maryland
- 3:24 p.m. – 3:28 p.m. *Mid-Term Outcomes and Implant Survivorship After Total Ankle Arthroplasty: A Retrospective Review*
Andrew Freear, MD, West Virginia University
- 3:28 p.m. – 3:32 p.m. *Beyond Frailty and Procedure Type: Machine-Learning Derived Preoperative Archetypes Stratify 30-Day Risk Across Total Hip and Knee Arthroplasty*
John P. Avendano, MD, Johns Hopkins University
- 3:32 p.m. – 3:36 p.m. *Early vs Late Periprosthetic Fracture after Total Knee Arthroplasty: Differences in Patient Characteristics*
Amil Agarwal, MD, Johns Hopkins University
- 3:36 p.m. – 3:40 p.m. *Trends in Tranexamic Acid, Surgical Timing, and 90-Day Outcomes After Pelvic and Acetabular Fracture ORIF*
Krishna Vangipuram Suresh, MD, Johns Hopkins University
- 3:40 p.m. – 3:50 p.m. **Question and Answer**
- 3:50 p.m. – 4:00 p.m. **Break – please submit your scores from Session V to OREF Staff**

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Persistent Underutilization and Declining Pharmacologic Treatment of Osteoporosis Following Spinal Fragility Fractures: A National Cohort Study

Theodore Quan, MD
George Washington University

Purpose: This study evaluated national trends in osteoporosis screening and treatment within one year following fragility fractures of the spinal column.

Significance: Timely screening and treatment of osteoporosis after an initial spinal fracture are key quality metrics to reduce subsequent fracture risk.

Methods: A national database was queried from 2011-2021 to identify patients who sustained thoracolumbar fragility fractures. Annual rates of osteoporosis screening and treatment within one year of fracture were calculated. Compound annual growth rate (CAGR) was used to assess temporal changes, and linear regression was employed to evaluate statistical significance of trends over time.

Results: A total of 887,273 patients with fragility fractures of the spinal column were identified (69% female; majority age ≥ 70 years). The proportion undergoing osteoporosis screening remained stable, ranging from 6.5% in 2011 to 6.3% in 2021, with a non-significant overall decline (CAGR – 0.2%, $p=0.242$). In contrast, treatment rates declined significantly over the study period, from 6.1% in 2011 to 4.5% in 2021 (CAGR –1.6%, $p=0.007$).

Conclusion: Rates of screening and treatment of osteoporosis within one year after an initial fracture unfortunately remain low. These findings highlight a persistent national care gap and underscore the need for system-level interventions to improve secondary fracture prevention.

Unplanned Readmission After Pediatric Spinal Deformity Surgery: Rates, Causes, and Associated Factors

Husni Alasadi, MD
University of Maryland

Purpose: We hypothesized that pediatric patients undergoing surgery for scoliosis or spinal deformity would have higher readmission at 90 than 30 days, particularly with neuromuscular disease, comorbidity, extensive reconstruction, or a complicated index hospitalization.

Significance: Pediatric readmission and its associated factors remain incompletely defined beyond 30 days.

Methodology: PubMed, Embase, Scopus, and Cochrane CENTRAL were searched. Random effects models pooled rates and associations; remaining factors were synthesized without meta-analysis. ROBINS E and GRADE assessed bias and certainty.

Results: Ninety-five studies were included. Readmission occurred after 3.8% of admissions within 30 days and 7.9% within 90 days. At 90 days, rates were 13.9% in neuromuscular cohorts and 3.6% in idiopathic cohorts. Neuromuscular diagnosis was associated with threefold higher odds at 30 days and fourfold higher odds at 90 days. Other factors included comorbidity, extensive surgery, and prolonged or complicated hospitalization. Wound and surgical site complications were the most common early causes. Certainty was low to very low.

Conclusion: Readmission nearly doubled by 90 days and was greatest among patients with neuromuscular deformity, medical complexity, extensive reconstruction, or a difficult index hospitalization. Early readmissions were predominantly wound related, supporting risk stratified counseling, discharge planning, and surveillance beyond 30 days.

Sodium-Glucose Cotransporter-2 Inhibitor Exposure and Pseudarthrosis After Multilevel Anterior Cervical Discectomy and Fusion in Type 2 Diabetes

Evan Honig, MD
University of Maryland

Purpose: We hypothesized that perioperative sodium-glucose cotransporter-2 (SGLT2) inhibitor exposure would be associated with lower pseudarthrosis after anterior cervical discectomy and fusion (ACDF) in patients with type 2 diabetes, particularly after multilevel fusion.

Significance: Diabetes increases spinal nonunion risk, while SGLT2 inhibitors may affect bone metabolism. Their relationship to cervical fusion outcomes is unknown.

Methodology: Adults with type 2 diabetes undergoing ACDF in the TriNetX US Collaborative Network were propensity matched by SGLT2 inhibitor exposure. Single-level and multilevel procedures were analyzed separately through 2 years. The primary outcome was 2-year pseudarthrosis. Multiplicity-adjusted analyses and E-values assessed robustness.

Results: Matching yielded 1,780 patients per multilevel group. At 2 years, pseudarthrosis was lower with SGLT2 inhibitor exposure (2.56% vs 4.68%; RR 0.55; 95% CI 0.38–0.79), corresponding to a number needed to treat of 47. The association remained significant after correction and had an E-value of 3.05. Instrumentation failure, revision, and early complications did not differ. Single-level pseudarthrosis was not estimable.

Conclusion: SGLT2 inhibitor exposure was associated with lower coded pseudarthrosis after multilevel ACDF without greater early morbidity. Residual confounding remains plausible, so this finding is hypothesis-generating rather than evidence of a protective drug effect.

Decompression Alone Versus Decompression with Instrumented Fusion for Lumbar Degenerative Spondylolisthesis: A Systematic Review, Meta-Analysis, and Trial Sequential Analysis of Randomized Controlled Trials

Usman Zareef, MD
University of Maryland

Purpose: Decompression alone would provide patient reported outcomes and reoperation rates comparable to decompression with instrumented fusion while reducing operative burden in patients with lumbar degenerative spondylolisthesis.

Significance: Fusion increases operative burden, yet uncertainty regarding its clinical benefit and effect on reoperation continues to influence treatment selection.

Methodology: PubMed, Embase, Cochrane CENTRAL, Scopus, and ClinicalTrials.gov were searched through May 2026 for randomized trials comparing decompression alone with decompression plus instrumented fusion with at least two years of follow up. Random effects, trial sequential, equivalence, and Bayesian analyses were performed. Evidence certainty was assessed using GRADE.

Results: Four trials including 523 patients were analyzed. Fusion did not improve Oswestry Disability Index scores at two or five years, pain, quality of life, or clinically meaningful improvement. Fusion increased blood loss by 323 mL, operative time by 95 minutes, and length of stay by 1.7 days. Reoperation was similar between groups, with a risk ratio of 0.92 and a 95% confidence interval of 0.40 to 2.13. Evidence supported clinical equivalence for disability, whereas reoperation remained inconclusive.

Conclusion: Routine fusion increased operative burden without improving patient reported outcomes through five years. Fusion may be reserved for instability, deformity, or other structural indications.

Reoperation, Complications, and Surgical Site Infection After Minimally Invasive Lumbopelvic Fixation for High-Energy Traumatic Sacral Fractures: A Single-Center Retrospective Review

Ryan Curto, MD
University of Maryland

Purpose: We hypothesized that reoperation after minimally invasive lumbopelvic fixation for traumatic sacral fractures would be driven by implant removal and wound complications rather than mechanical failure.

Significance: Minimally invasive lumbopelvic fixation stabilizes sacral fractures and spinopelvic dissociation, but its morbidity profile, causes of reoperation, and predictors of infection and readmission remain incompletely defined.

Methodology: We retrospectively reviewed 51 consecutive patients undergoing treatment from 2018 to 2025. Outcomes included reoperation, 90-day surgical site infection, readmission, construct complications, and neurological recovery. Candidate risk factors were assessed using univariate analyses.

Results: Reoperation occurred in 21.6% of patients and was primarily related to symptomatic implant removal or infection and wound management. Implant failure occurred in 3.9%, screw loosening in 2.0%, and no adjacent segment events were observed. Surgical site infection occurred in 11.8% and was associated with greater blood loss. Readmission occurred in 25.5% and was associated with infection, visceral injury, and greater blood loss. Among patients with paired ASIA grades, 46.4% improved and none worsened.

Conclusion: Reoperation was common but was driven by implant removal and wound care rather than mechanical failure. Neurological recovery occurred, while infection and readmission appeared related to injury severity and blood loss.

Intraoperative Cell Salvage in Thoracolumbar Spinal Deformity: Is it Worthwhile?

Goutham R. Yalla, MD
Johns Hopkins University

Purpose: To determine if intraoperative cell salvage use during adult thoracolumbar deformity surgery is associated with reduced perioperative allogeneic blood transfusion.

Significance: Adult spinal deformity surgery is associated with substantial blood loss, and allogeneic blood transfusion carries risks, including transfusion reactions and infections. Studies report mixed results on the efficacy of intraoperative cell salvage in reducing transfusions.

Methods: A large, multi-center cohort of thoracolumbar deformity patients were stratified by intraoperative cell salvage use. The primary outcome was perioperative allogeneic transfusion. Secondary outcomes included transfusion reactions and postoperative complications. Multivariate regression assessed associations, while controlling for confounders.

Results: Of 900 patients, 653 (72.6%) used intraoperative cell salvage. The cell salvage cohort had higher EBL, operative time, levels fused, and osteotomy rates (all $p < 0.01$), yet median red blood cell (RBC) transfusion did not differ. On regression, cell salvage reduced transfusions of RBC ($\beta -0.62$, $p < 0.001$), fresh frozen plasma ($\beta -0.67$, $p < 0.001$), and platelets ($\beta -0.10$, $p = 0.019$). Rates of transfusion reactions, medical complications, thromboembolic events, and surgical site infection (SSI) were similar, but on regression, cell salvage was associated with reduced deep SSI (OR 0.34, $p = 0.021$).

Conclusion: Intraoperative cell salvage is associated with reduced perioperative allogeneic transfusion without increased transfusion-related or postoperative complications.

Anabolic Effects of Sermorelin in a Rat Model of Postmenopausal Bone Loss

Catherine Baylor Wickes, MD

Northwell North Shore/Long Island Jewish

Purpose: This project investigates GHRH analog sermorelin as a potential anabolic treatment for postmenopausal osteoporosis and provides insight into sermorelin's anabolic potential, delivery route impact, and biological correlates of treatment.

Significance: The study aims to identify a safe, effective, patient-friendly alternative to current osteoporosis therapies. Osteoporosis affects > 200 million globally with medical management primarily relying on antiresorptive agents. Limitations in long-term efficacy and adherence necessitate exploring alternative therapies.

Methods: Using a validated ovariectomized rat model, the study evaluates the effects of oral and injectable sermorelin on bone microarchitecture over 12 weeks, compared to alendronate and placebo. The study includes longitudinal in vivo micro-CT imaging, biomechanical 3-point testing, histological analysis and ELISA for CTX, osteocalcin, and IGF-1 levels. Time points at 0, 4, and 12 weeks assess bone mineral density, bone volume/tissue volume [BVBT], trabecular thickness [TB], and trabecular spacing [TS]. Histomorphometric staining was used to assess osteoblast/osteoclast activity. Endpoint results were analyzed using ANOVA and Tukey HSD.

Results: Sermorelin performs better than control as early as 4 weeks with respect to BVBT, TB, and TS with oral delivery producing superior results compared to subcutaneous injection.

Conclusion: Oral sermorelin is a potential alternative effective therapy for management of osteoporosis.

The Impact of Geographical Background on the Orthopaedic Surgery Residency Match

Andrew Kim, MD
Johns Hopkins Medicine

Purpose: Analyze geographic trends among matched orthopaedic surgery residents

Significance: With the introduction of geographic preferences, orthopaedic surgery residency applicants can transparently indicate preferences for geographic regions. While studies have evaluated how board scores/preference-signaling affect an applicant's match, little research has evaluated the impact of geography

Methods: Orthopaedic surgery residency program websites were used to identify residents and their sex, hometown, undergraduate institution, and medical school attended. These were categorized into regions as defined by the AAMC's 'Geographic Preference Divisions Map.' Bivariate analysis/logistic regression were performed to compare geographic variables and their impact on matching in certain regions.

Results: In 151 residency programs, 3,725 residents were identified. Males comprised 78.4% of all residents, with 23.6% matching at their home institution. Residency program region was significantly associated with a resident's hometown, undergraduate institution, and medical school region ($p < 0.05$). Home-institution match rates were significantly associated with geographic region ($p < 0.05$). Logistic regression revealed a significant increase in likelihood of matching into an orthopaedic residency program based on the number of ties to the program region ($p < 0.05$).

Conclusion: Geographic background has a significant role in an applicant's match for orthopaedic surgery residency. Applicants should consider their geographic background when applying into orthopaedic surgery.

Oocyte Cryopreservation Experiences and Attitudes Among Female Orthopaedic Surgeons

Alexandra H. Seidenstein, MD
Johns Hopkins University

Purpose: More women are entering orthopaedic surgery but face unique challenges in family building, while access to fertility preservation during training remains incompletely understood. We hypothesized that female orthopaedic surgeons face financial, scheduling, institutional, and knowledge barriers to oocyte cryopreservation, particularly during residency.

Significance: Oocyte cryopreservation may support women who delay childbearing during surgical training, yet barriers to access among female orthopaedic surgeons remain poorly characterized.

Methodology: A 45-question Qualtrics survey was distributed through the Ruth Jackson Orthopaedic Society, residency program directors, and regional orthopaedic societies to female orthopaedic residents, fellows, and attendings. Responses were summarized descriptively by training status.

Results: Among 169 respondents, 63% intentionally delayed childbearing, 54% considered oocyte cryopreservation, and 21% had undergone or planned a cycle. Among those who considered but did not proceed, 75% cited cost and 42% time constraints. Major barriers included inflexible scheduling, lack of insurance coverage, and restrictive leave policies. Attendings more often than residents/fellows reported discomfort disclosing planned cryopreservation (69% vs 38%) and inadequate residency scheduling flexibility (62% vs 32%). Mean fertility knowledge score was 1.46/5.

Conclusion: Barriers extend beyond cost to modifiable training-program factors. These findings support privacy-conscious scheduling, leadership support, insurance coverage, and reproductive health education.

Malpractice Litigation Trends and Predictors of Outcomes in Elective Total Hip and Total Knee Arthroplasty

Sukrit Suresh, MD
Johns Hopkins University

Purpose: We hypothesized that specific patient, complication, and allegation characteristics would predict malpractice case outcomes following elective total hip and knee arthroplasty (THA/TKA).

Significance: Malpractice litigation is a source of professional anxiety and financial burden for adult reconstruction surgeons. Despite increasing THA/TKA volume and comprehensive literature describing surgical complications, drivers of malpractice litigation and case outcomes remain poorly understood.

Methods: Westlaw was queried for malpractice cases from 2000–2025. Of 1,145 cases identified, 307 elective THA/TKA cases were included. Patient demographics, procedure type, symptoms/complications, and allegations of error were extracted. Univariate analyses and binomial/multinomial logistic regression identified predictors of case outcome.

Results: Of 307 cases, 223 were defense verdicts and 84 plaintiff successes (27.36%). PJI and nerve injury rates did not differ between plaintiff and defendant successes. Surgical error allegations (OR:0.49; P=0.042), loss of joint constraint (OR:0.22; P=0.024), and later verdict year (OR:0.94; P=0.014) predicted lower odds of plaintiff success. Patient death predicted settlement (OR:3.58; P=0.028).

Conclusion: PJI and nerve injury appear recognized as inherent surgical risks rather than indicators of negligence, while patient death strongly predicts settlement. Increasing defendant verdicts over time highlight an improving legal landscape and provide surgeons greater understanding of factors influencing litigation outcomes.

Clinical and Magnetic Resonance Imaging Analysis of a Novel Aragonite-Based Scaffold for Articular Cartilage Defects of the Knee

Rajiv Reddy, MD

The Hospital for Special Surgery

Purpose: To provide a post-market analysis of early radiologic and clinical outcomes following treatment of knee articular cartilage defects with a novel, aragonite-based scaffold (ABS).

Significance: ABS is a recently approved single-stage treatment for focal chondral/osteochondral knee defects in select patients who are not ideal candidates for traditional restoration techniques. Despite promising pre-clinical results, independent post-market studies evaluating its radiographic and clinical outcomes remain limited.

Methods: This prospective series included consecutive patients undergoing ABS treatment for knee cartilage defects by two surgeons. The primary outcome was comprehensive morphologic quality of repair tissue at 6-months, measured via Magnetic Resonance Observation of Cartilage Repair Tissue (MOCART) 2.0 score. Secondary outcomes included improvements in IKDC and KOOS at 1-year follow-up.

Results: 43 patients (mean age 45.4 ± 10.9 years, 60% male, mean defect size 2.7 ± 2.1 cm²) underwent ABS treatment, with 40 (93.0%) completing follow-up MRI. Mean MOCART score was 79.7 ± 8.2 , with 90% of patients demonstrating $\geq 75\%$ fill, and 60% achieving 100% fill. IKDC ($+18.1$, $p < 0.001$) and KOOS ($+19.7$, $p < 0.001$) scores improved significantly from baseline.

Conclusion: ABS treatment demonstrated favorable early structural and clinical outcomes, supporting its use as a promising single-stage treatment for knee cartilage defects, while longer term studies are needed to establish durability.

Comparing “Completely Better” Status to Clinically Significant Outcomes Metrics after Hip Arthroscopy

David Sproul, MD
University of Maryland

Purpose: This study compared achievement of clinically meaningful Patient-Reported Outcome Measurement Information System (PROMIS) thresholds after hip arthroscopy and evaluated relationships between previously established thresholds and “Completely Better” (CB) status.

Significance: Several clinically meaningful interpretations of PROMIS scores have been developed, including minimal clinically important difference (MCID), patient-acceptable symptom state (PASS), and substantial clinical benefit (SCB). However, there is little comparative data on MCID, PASS, SCB, and CB achievement.

Methods: Patients who underwent hip arthroscopy for femoroacetabular impingement and/or labral tear between October 2015 and May 2023 were identified from a prospectively maintained orthopaedic registry. Clinically significant outcome achievement was compared between published MCID/PASS/SCB thresholds and CB status.

Results: Of 106 patients included in the analysis, there were 59 CB (55.7%) patients, compared to 66-73% of patients who achieved MCID and PASS. SCB achievement for PROMIS Physical Function (PF) and PROMIS Pain Interference (PI) best predicted CB status. Thresholds of 51.2 for PROMIS PF and 50.1 for PROMIS PI maximized CB status achievement.

Conclusion: MCID, PASS, and SCB are well aligned with CB status, however, achievement of CB status is a higher metric to meet. Achieving SCB for PROMIS PF and PI was most associated with achievement of CB status.

Associations Between Elevated PROMIS Depression and Outcomes After Multi-ligament Knee Reconstruction

Stefan Dabic, MD
University of Maryland

Purpose: This study aimed to investigate the relationship between elevated preoperative Patient-Reported Outcome Measurement Information System (PROMIS) Depression and patient-reported outcomes (PROs) two years after multi-ligament knee reconstruction (MLKR).

Significance: Mental health is an important aspect of preoperative patient status that may influence postoperative outcomes after multi-ligament knee injury.

Methods: After Institutional Review Board (IRB) approval, a prospectively enrolled orthopaedic registry was queried for patients undergoing MLKR (reconstruction of 2 or more ligaments) from 2016 to 2022. Preoperative PROMIS Depression ≥ 60 defined elevated scores. Patients completed PROs at baseline and 2 years postoperatively, including PROMIS domains, International Knee Documentation Committee Subjective Knee Form (IKDC), and Numeric Pain Scales (NPS). Statistical analysis was performed to identify associations between worse mental health scores and outcomes.

Results: Of 63 eligible patients, 42 (67%) completed 2-year PROs. There were 12 (28.6%) patients with elevated preoperative PROMIS Depression. On multivariable regression analysis, elevated preoperative PROMIS Depression predicted worse 2-year PROMIS Anxiety, PROMIS Depression, and IKDC, however, 2-year improvement in PROs was similar.

Conclusion: Elevated preoperative PROMIS Depression was an independent predictor of worse 2-year mental health outcomes and IKDC scores, however, 2-year improvement in PROs from baseline was similar between groups.

Patient-Reported Outcomes After ACL Reconstruction are Non-Inferior Following Perioperative Opioid Counseling: Secondary Analysis of a Randomized Controlled Trial

Joseph Blommer, MD
University of Maryland

Purpose: This study aimed to evaluate the effect of opioid-limiting perioperative pain management education and counseling on postoperative patient-reported outcomes (PROs).

Significance: Excessive opioid prescribing after anterior cruciate ligament (ACL) reconstruction remains a major concern.

Methods: This was a secondary analysis of a parallel-arm randomized controlled trial conducted at a single academic institution, including patients ≥ 14 years old who underwent ACL reconstruction. The treatment group underwent opioid-limiting perioperative pain management education and counseling with instructions to take opioids only as a last resort, while the control received traditional perioperative pain management instructions. Linear mixed-effects models compared postoperative PRO trajectories.

Results: There were 52 patients in the control group and 49 in the treatment group. Total morphine equivalents at 90 days were significantly lower among patients in the treatment group than in the control group. All measured PRO recovery trajectories over the two-year postoperative course in the treatment group were non-inferior to those of the control group.

Conclusion: Opioid-limiting pain management education and counseling led to a substantial difference in total opioid consumption at 90 days. All PRO recovery trajectories over 2 years after surgery among patients in the treatment group were non-inferior to those of the control group.

Athletes Achieve Superior 2-year Patient-Reported Outcomes after Hip Arthroscopy as Compared to Non-Athletes

Matthew Chrencik, MD
University of Maryland

Purpose: The purpose of this study was to investigate associations between pre-operative athlete status and two-year patient-reported outcomes (PROs) after hip arthroscopy.

Significance: There remains limited literature comparing PROs for athletes and non-athletes undergoing hip arthroscopy.

Methods: Patients undergoing hip arthroscopy for femoroacetabular impingement (FAI) syndrome and/or labral tear between October 2015 and June 2023 were identified from a prospective orthopaedic registry. Athlete status was defined by pre-injury Tegner Activity Scale (Tegner) > 6. Multiple PROs were collected, including six Patient-Reported Outcomes Measurement Information System (PROMIS) domains, numeric pain scales (NPS), and Marx Activity Rating Scale of the lower extremity (MARS LE). Statistical analyses compared athlete and non-athlete patients.

Results: Of 140 eligible patients, 106 (75.7%) completed two-year follow-up and were included in the analysis. There were 46 competitive athletes and 60 non-athletes. On multivariable analysis, athlete status was an independent predictor of better two-year PROMIS Physical Function, PROMIS Pain Interference, PROMIS Fatigue, NPS Body, Tegner, and MARS LE. Athlete status was also an independent predictor of greater two-year improvement in PROMIS Physical Function, NPS Body, and MARS LE.

Conclusion: Athlete status may be independently associated with superior function, pain, and activity level outcomes two years after hip arthroscopy.

Measuring What Matters: Continuous Smartphone Mobility Sensing After Anterior Cruciate Ligament Reconstruction

Luke Pitsenbarger, MD
University of Maryland

Purpose: This study aimed to assess whether smartphone mobility data could characterize and predict functional recovery after anterior cruciate ligament reconstruction (ACLR).

Significance: Recovery is the primary concern for patients after ACLR, yet the tools for measuring it remain limited and largely episodic.

Methods: Adult patients undergoing ACLR who used a compatible smartphone and consented to data sharing were included; eligible patients had >26 weeks post-operative follow-up, with patients' pre-operative reference windows serving as comparators. We fit a generalized additive model with a monotonic-increasing constraint on time, a smooth term on pre-operative mobility, and adjustment for sex, mirroring a previously validated framework.

Results: 50 patients met inclusion criteria. At 1 to 4 weeks postoperatively, daily step count fell to a mean of 1,946, a 77% reduction from the pre-operative reference. Walking speed declined 33%, and walking asymmetry rose from 3.5% to 33.2%. All three metrics were statistically indistinguishable from baseline by 26 to 30 weeks. Forty-three of 50 patients (86%) returned to their baseline step count, at a median of 12 weeks.

Conclusion: Mobility deficits were profound in the first month and returned to pre-operative levels across all three metrics by approximately 3 to 6 months, following a reproducible trajectory.

A Geospatial Analysis of Open and Endoscopic Carpal Tunnel Surgery in the United States

Nicole Liddy, MD
SUNY Downstate Medical Center

Purpose: We hypothesized that counties with greater socioeconomic deprivation would have lower utilization of carpal tunnel release (CTR), with distinct geographic patterns between open and endoscopic techniques.

Significance: Geographic disparities in open and endoscopic CTR utilization remain poorly characterized, limiting efforts to improve equitable access to care.

Methods: A cross-sectional analysis of Medicare beneficiaries undergoing CTR from 2013-2022 was performed. Moran's I identified county-level hotspots and coldspots, and multivariable logistic regression evaluated socioeconomic predictors of hotspot versus coldspot designation.

Results: Among 1,411,972 patients, 73.9% underwent open CTR. For overall CTR, a greater percentage living in rural communities (OR=0.96, p=0.0018) was associated with coldspots. For open CTR, a greater percentage living in rural communities (OR=0.97, p=0.018) and a greater percentage uninsured (OR=0.80, p=0.018) were associated with coldspots. For endoscopic CTR, a higher percentage of adults with obesity (OR=0.85, p=0.0072) was a significant predictor of coldspots.

Conclusion: Significant geographic disparities in CTR utilization persist in the Medicare population. Living in a rural environment was the strongest predictor of reduced utilization, highlighting the need for targeted efforts to improve access to hand surgery in underserved communities.

Allergy History is Associated with Postoperative Complications Following Distal Radius Fracture Open Reduction Internal Fixation

Lahin Amlani, MD
Johns Hopkins University

Purpose: To evaluate the association between patient-reported allergies (PRAs) and postoperative complications after distal radius fracture (DRF) open reduction internal fixation (ORIF). We hypothesized that allergies increase complication risk.

Significance: PRAs predict worse outcomes after orthopaedic procedures such as shoulder arthroplasty, but their impact after DRF ORIF is unknown.

Methods: Retrospective cohort study using the TriNetX Research Network. Adults undergoing DRF ORIF were identified by CPT codes 25607, 25608, and 25609, and preoperative allergy history by ICD-10-CM codes. Patients with allergies were 1:1 propensity score matched to patients without documented allergies before or during 2-year follow-up on demographics, BMI category, fracture pattern, Charlson comorbidities, osteoporosis, nicotine dependence, alcohol-related disorders, psychiatric and pain diagnoses, asthma, rhinitis, dermatitis, urticaria, and anaphylaxis history. Ninety-day and 2-year complications were compared using risk ratios (RR) with 95% confidence interval (CI).

Results: Among 8151 matched pairs, patients with PRAs had higher 90-day risk of surgical site infection (RR=2.05, 1.23–3.40), wound disruption (RR=2.13, 1.17–3.85), and emergency department visits (RR=1.34, 1.22–1.47), and higher 2-year risk of complex regional pain syndrome (RR=1.43, 1.04–1.95).

Conclusion: Allergies are associated with increased risk of short-term infection and wound complications and 2-year complex regional pain syndrome after DRF ORIF.

Excision of Distal Pole of Scaphoid and Triquetrum to Improve Radiolunate Arthrodesis

Rafa Rahman, MD

The Hospital for Special Surgery

Purpose: We hypothesize that distal pole of scaphoid excision (DSE) and triquetral excision (TE) will improve wrist range of motion (ROM) after radiolunate arthrodesis (RLA), without causing distal carpal row instability.

Significance: RLA is a time-honored solution for wrist arthritis and instability, but with major downsides. There is decreased in ROM in all planes, and techniques are technically demanding. Numerous fixation strategies have been described, some with high rates of nonunion, and no consensus on optimal technique.

Methods: Ten cadavers were tested in multiple states: 1) native, 2) RLA, 3) RLA+isolated DSE or TE, and 4) RLA+DSE and TE. Markers measured terminal ROM in loaded positions for flexion-extension, radial-ulnar deviation, and Dart thrower's motion. RMANOVA compared arc of motion in each plane ($\alpha=0.05$). Distal row stability was tested with a 40N dorsal-palmar and radial-ulnar force, and capitate translation of on the fixed lunate assessed.

Results: Stepwise DSE, TE, or both significantly improved motion after RLA in all tested planes (RMANOVA, $p<0.001$). No distal row dislocation was noted in any specimen.

Conclusion: DSE or TE in RLA increases ROM compared to RLA alone, without causing instability. This may provide improved outcomes and enhanced surgical access and fixation for those with debilitating arthritis or instability.

Rotator Cuff Repair with Concomitant Biceps Tenodesis is Cost-Effective at Mid-Term Follow-up: A Systematic Review and Cost-Effectiveness Analysis

Rodrigo Saad Berreta, MD
Johns Hopkins University

Purpose: To perform a cost-utility analysis comparing rotator cuff repair (RCR) to RCR with biceps tenodesis (BT) in patients with rotator cuff tears over a 5-year horizon.

Significance: Evidence describing the cost-effectiveness of adding biceps tenodesis to RCR at mid-term follow-up remains limited, despite its frequent use for concomitant biceps pathology.

Methods: A decision-tree economic model compared RCR to RCR+BT over 5 years using literature-derived transition probabilities, costs, and EQ-5D-based utilities, measured in quality-adjusted life years (QALYs) with 3% annual discounting. Cost-effectiveness was based on the incremental cost-effectiveness ratio (ICER) at a \$50,000/QALY willingness-to-pay threshold, with Monte Carlo and one-way sensitivity analyses for parameter uncertainty.

Results: RCR+BT yielded higher QALYs (3.713 vs 3.651) at a higher mean cost (\$34,182 vs \$33,372) than RCR alone, with an ICER of \$13,064/QALY and a positive net monetary benefit (\$2,289). RCR+BT was preferred in 88.51% of simulations and remained cost-effective with implant costs up to \$3,048, revision rates up to 6.7%, and added operative time up to 53.7 minutes.

Conclusion: Despite higher upfront costs, adding biceps tenodesis to index rotator cuff repair provides greater quality-adjusted life years and is cost-effective compared with isolated repair at mid-term follow-up.

Pre-Existing Lumbar Spine Pathology and Outcomes After Primary Total Knee Arthroplasty: A Systematic Review and Meta-Analysis

Aneesh Patankar, MD
University of Maryland

Purpose: We hypothesized that pre-existing lumbar spine pathology would be associated with worse patient-reported outcomes, physical function, and satisfaction after primary total knee arthroplasty (TKA), particularly when lumbar disease was symptomatic.

Significance: Although TKA reliably relieves pain, dissatisfaction remains common, and lumbar pathology frequently coexists. Prior evidence is limited by small samples, heterogeneous definitions, and varied outcome measures.

Methods: We systematically reviewed comparative studies of adults undergoing primary TKA with versus without pre-existing lumbar pathology. Random-effects meta-analysis pooled comparable outcomes, while remaining findings were synthesized by direction of effect. Risk of bias was assessed using the Newcastle-Ottawa Scale and Joanna Briggs Institute checklist.

Results: Fifteen studies were included. No study favored the lumbar-involved group. Worse outcomes were observed for knee-specific measures in 7 of 9 studies, physical function in all 6, and satisfaction in all 3. Pooled analyses showed lower Oxford Knee Scores (MD -4.6), greater dissatisfaction (OR 1.49), and worse overall knee outcomes (SMD -0.49; $I^2=0\%$). Null studies generally defined lumbar disease radiographically rather than symptomatically.

Conclusion: Pre-existing lumbar pathology is associated with worse function, patient-reported outcomes, and satisfaction after TKA, especially when symptomatic. These observational findings support assessing lumbar symptom burden during preoperative counseling.

Mid-Term Outcomes and Implant Survivorship After Total Ankle Arthroplasty: A Retrospective Review

Andrew Frear, MD
West Virginia University

Purpose: We evaluated the mid-term clinical and radiographic outcomes of total ankle arthroplasty (TAA) designs, hypothesizing that fourth-generation TAA would have high survivorship, even in high-risk patients (obese, diabetic, smokers, and tibiotalar coronal deformity $\geq 10^\circ$).

Significance: Newer TAA designs are thought to yield more favorable outcomes than older generations, yet long-term data are lacking and the literature is heterogeneous. Mid-term evaluation is warranted to guide patient selection and expectations.

Methods: We retrospectively reviewed primary TAAs at a tertiary center (January 2018-September 2022). Non-ambulatory patients, fusion takedowns, and <2 years follow-up were excluded. Of 170 TAAs, 78 were included. Demographics, comorbidities, implants, complications, reoperations, revisions, and radiographic coronal alignment were recorded.

Results: Mean follow-up was 3.9 years (range 2.0–8.3). Survivorship was 96.2% at mean follow-up, 92.3% overall. Complications occurred in 23 ankles (29.5%); 10 (12.8%) developed prosthetic joint infection, with one (1.3%) amputation. Revision was required in 15 ankles (19.2%), most commonly for deep infection (65.2%). Diabetes, smoking, obesity (all $p \geq 0.369$), and coronal deformity $\geq 10^\circ$ ($p=0.467$) were not associated with increased revision.

Conclusion: Fourth-generation TAA demonstrated excellent mid-term survivorship (96.2%), with revision driven primarily by infection. Comorbidities and coronal deformity did not affect revision rates. Larger, longer studies are warranted.

Beyond Frailty and Procedure Type: Machine-Learning Derived Preoperative Archetypes Stratify 30-Day Risk Across Total Hip and Knee Arthroplasty

John P. Avendano, MD
Johns Hopkins University

Purpose: We hypothesized that machine learning could identify distinct preoperative patient groups and that group assignment would improve 30-day postoperative outcome prediction beyond conventional risk factors.

Significance: Risk assessment before total hip (THA) and knee arthroplasty (TKA) is often based on procedure type, ASA class, comorbidity burden, and frailty scores. However, patients undergoing the same procedure may carry different types of risk not captured by conventional measures.

Methods: Using NSQIP (2016–2024), we applied k-prototypes clustering to 839,651 adults undergoing primary THA/TKA. Inputs included demographics, comorbidities, functional status, and laboratory values. Three XGBoost models incorporating frailty/ASA, all preoperative variables, or preoperative variables plus group assignments were evaluated across eight 30-day outcomes.

Results: Four groups were identified: low-comorbidity (33%); younger metabolic/smoking (26%); older lean/modest-comorbidity (33%); and older cardiorenal (8%). Groups were independent of procedure type and distinct from frailty. The younger metabolic group had the highest surgical site infection risk, whereas the older cardiorenal group had the highest mortality and major complications. Adding group assignment improved mortality discrimination (+0.05 AUC; $p < 0.0001$).

Conclusion: Machine learning identified clinically relevant preoperative groups with distinct risk profiles, demonstrating value beyond conventional risk stratification and potentially improving preoperative counseling, optimization, and risk communication.

Early vs Late Periprosthetic Fracture after Total Knee Arthroplasty: Differences in Patient Characteristics

Amil Agarwal, MD
Johns Hopkins University

Purpose: We hypothesized that early and late periprosthetic fractures (PPF) following total knee arthroplasty (TKA) represent distinct clinical entities with different risk profiles.

Significance: PPF following TKA is a serious complication associated with increased morbidity, prolonged disability, and high healthcare costs. While older age, female sex, and osteoporosis are established risk factors, differences between early and late PPF risk profiles remain poorly understood.

Methods: Adults undergoing primary TKA were identified from a national administrative database and categorized as early PPF (<90 days), late PPF (90 days–2 years), or controls without PPF. Demographics, comorbidities, and medications were extracted. Multivariable logistic regression identified independent risk factors for early and late PPF.

Results: Among 1,331,514 patients, 1,483 experienced early PPF and 2,692 late PPF. Male sex was protective against both. Osteoporosis, rheumatoid arthritis/collagen disorders, paralysis, depression, loop diuretics, and heparin were associated with both timeframes. Cardiovascular conditions were more strongly associated with late PPF, while drug abuse showed stronger association with early PPF.

Conclusion: Early and late PPFs share several risk factors but diverge across key patient characteristics. Recognizing shared and timing-specific risk profiles identifies actionable targets for risk reduction and may allow more tailored perioperative planning and targeted fracture prevention strategies.

Trends in Tranexamic Acid, Surgical Timing, and 90-Day Outcomes After Pelvic and Acetabular Fracture ORIF

Krishna Vangipuram Suresh, MD
Johns Hopkins University

Purpose: We hypothesized that tranexamic acid (TXA) utilization and early fixation have increased over time and that immediate surgery with TXA would not increase short-term perioperative risk compared with delayed surgery.

Significance: The optimal timing of pelvic and acetabular fracture fixation remains debated. Although early surgery has historically been considered a risk factor for increased bleeding, recent evidence favors early fixation in stable patients. Contemporary trends in TXA utilization and surgical timing remain poorly characterized.

Methods: Using TriNetX, adults undergoing pelvic or acetabular fracture ORIF were identified. Immediate surgery was defined as ORIF within 3 days and delayed surgery as 3 days–2 weeks. Three propensity-score matched comparisons evaluated TXA use, surgical timing, transfusion, and 90-day complications. Temporal trends were assessed using trend testing and logistic regression.

Results: TXA recipients had higher transfusion rates than controls following immediate (7.7% vs 3.1%; $P<0.0001$) and delayed surgery (8.5% vs 4.0%; $P<0.0001$). Among TXA recipients, immediate versus delayed surgery demonstrated no differences in transfusion or 90-day complications. TXA utilization increased from 8.0% to 29.8% in immediate cohorts and 7.6% to 32.3% in delayed cohorts. Immediate ORIF increased from 67.1% to 78.5%.

Conclusion: TXA utilization and immediate fixation increased significantly over the past decade. Among TXA recipients, immediate fixation was not associated with increased short-term perioperative risk.

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The Hospital for Special Surgery
Skeletal Age Assessment from Knee Radiographs Using Deep Learning

Bhargavi Maheshwer, MD

University Hospitals Cleveland Medical Center
Predictors of Anterior Cruciate Ligament Re-Injury and Return to Sports in Adolescent Athletes: Increased Risk in Younger Age and Earlier Time to Return to Sport

Katherine J. Montoya, MD

University of Arkansas for Medical Sciences
Ten Years of a Novel Telemedicine System for Management of Statewide Hand Trauma in Arkansas – A Decade in Review

Erik Nakken, MD

University of Michigan
Optimizing Contact Pressures of the Posterior Heel During Lower Extremity Immobilization: A Biomechanical Study

Sreetha Sidharthan, MD

The Hospital for Special Surgery
Reverse-Anatomical Front and Back Reconstruction for Volar Intercalated Segment Instability Non-Dissociative: A Biomechanical Study

Presenters' Choice

Alexander E. White, MD

The Hospital for Special Surgery
The Effect of Posterior Tibial Slope on Tibiofemoral Joint Biomechanics: An In-Vitro Analysis

MID-ATLANTIC

First Place

Julia Retzky, MD

The Hospital for Special Surgery
Early Anterior Cruciate Ligament Reconstruction Mitigates the Development of Post-Traumatic Osteoarthritis in a Murine Anterior Cruciate Ligament Rupture Model

Second Place

Zachary J. Herman, MD

University of Pittsburgh Medical Center
Overhead Athletes Have Comparable Intraoperative Injury Patterns and Clinical Outcomes to Non-Overhead Athletes Following Surgical Stabilization for First-Time Anterior Shoulder Instability at Average 6-year Follow-up

Alexander E. White, MD

The Hospital for Special Surgery
The Effect of Posterior Tibial Slope on Tibiofemoral Joint Biomechanics: An In-Vitro Analysis

Third Place

Alexander Berk, MD

University Hospitals/
Case Western Reserve University
Patients with Vitamin D Deficiency are More Likely to Develop Complex Regional Pain Syndrome After Extremity Fractures: A Large Database Propensity-Matched Cohort Study

Alexandra Baker Lutz, MD

University of Maryland
Impact of Obesity on Patient-Reported Outcomes Two Years After Multiple Ligament Knee Reconstruction

Margaret Sinkler, MD

Case Western Reserve University
To Fix or to Replace? An Analysis of Geriatric Periprosthetic Distal Femur Fractures Treated with Open Reduction Internal Fixation, Retrograde Intramedullary Nail, or Distal Femoral Replacement

Presenters' Choice

Alexander P. Hoffman, MD

University of Pittsburgh Medical Center
Intraoperative Evaluation of Sarcoma Surgical Margins with Indocyanine Green Fluorescence Imaging

MIDWEST

First Place

Katherine J. Montoya, MD

University of Arkansas for Medical Sciences
Ten Years of a Novel Telemedicine System for Management of Statewide Hand Trauma in Arkansas – A Decade in Review

Second Place

Bhargavi Maheshwer, MD

University Hospitals Cleveland Medical Center
Predictors of Anterior Cruciate Ligament Re-Injury and Return to Sports in Adolescent Athletes: Increased Risk in Younger Age and Earlier Time to Return to Sport

Erik Nakken, MD

University of Michigan
Optimizing Contact Pressures of the Posterior Heel During Lower Extremity Immobilization: A Biomechanical Study

Third Place

Apurva Choubey, MD

University of Illinois Chicago
Joint Arthroplasty in Breast Cancer: PE Risk and Thrombo-Prophylaxis Depend on Time Since Mastectomy

Kyleen Jan, MD

Rush University Medical Center
Midcarpal Stability Persists with $\leq 33\%$ Distal Scaphoid Resection: A 3D Computational Analysis

Mark Plantz, MD

Northwestern University
Pre-Clinical Safety and Efficacy Assessment of a Novel 3D-Printed Hydroxyapatite Demineralized Bone Matrix (HA-DBM) Composite Scaffold Using a Rodent Posterolateral Fusion Model

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Jordan Serotte, MD

University of Chicago
AI-Assisted MRI Interpretation Improves Surgeon Performance in Diagnosing Bankart Lesions

NORTHEAST

First Place

Joshua T. Bram, MD

The Hospital for Special Surgery
Skeletal Age Assessment from Knee Radiographs Using Deep Learning

Second Place

Sreetha Sidharthan, MD

The Hospital for Special Surgery
Reverse-Anatomical Front and Back Reconstruction for Volar Intercalated Segment Instability Non-Dissociative: A Biomechanical Study

Nathan Varady, MD

The Hospital for Special Surgery
Low Complication Rate Following Contemporary Pure Anteriorization Tibial Tubercle Osteotomy for Patellofemoral Overload

Third Place

Aonnicha Burapachaisri, MD

Icahn School of Medicine at Mount Sinai Hospital
Does the Distal Tip Position of Long Cephalomedullary Nails Impact Mechanical Failure Rates?

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Gergo B. Merkely, MD

Harvard Combined Orthopaedic Residency
AI-Driven Virtual Athlete Avatars for Injury Risk Stratification and Performance Analysis in Sports Medicine

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Rafa Rahman, MD, MPH

The Hospital for Special Surgery
Novel Scapholunate Bridge Augmentation to Treat Scapholunate Interosseous Ligament Injury

SOUTHEAST

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Joseph Geller, MD

Jackson Memorial Hospital/University of Miami
Tracking Wearable Device Compliance in Total Knee Arthroplasty Recovery

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David S. Constantinescu, MD

University of Miami
When the Robot Fails Us: A Comprehensive Analysis of a United States Food and Drug Administration Database of Technology-Assisted Arthroplasty

Olivia de Araujo, MD

Jackson Memorial Hospital/University of Miami
Consideration of Updated Breast Cancer Screening in Female Orthopaedic Surgeons: A Comprehensive Review

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James Frix, MD

Atrium Health Carolinas Medical Center
Early Implementation of Virtual Reality Therapy for Phantom Limb Pain: A Feasible and Effective Adjunct to Traditional Interventions

Aneesh V. Samineni, MD

Jackson Memorial Hospital/University of Miami
Prediabetes as an Unrecognizable Risk Factor for Inpatient Postoperative Complications After Total Knee Arthroplasty

Ryan Serbin, MD

Atrium Health Carolinas Medical Center
Targeted Brain Rehabilitation: A Novel Virtual Reality Protocol for Phantom Limb Pain Following Upper Extremity Amputation

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Blake H. Hodgens, MD

Atrium Health Carolinas Medical Center
Weightbearing After Distal Femur Fractures: Does the Surgeons' Postoperative Protocol Matter?

WESTERN

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Kyla Petrie, MD

University of California, San Francisco
Comparison of Retear Rates and All-Cause Reoperation Rates in Pediatric and Adolescent AL Reconstructions Using Bone Patellar Tendon and Quadriceps Tendon Grafts

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Grant Schroeder, MD

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Shorter Relative Patellar Defect Length After Bone Patellar Tendon Bone Anterior Cruciate Ligament Reconstruction is Associated with Better Postoperative Patient-Reported Outcomes at 1-year Follow-up

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University of California, Los Angeles
Predictive Factors of Having a Second UBC Related Pathologic Fracture

Third Place

Kelechi Nwachuku, MD

University of California, San Francisco
Osteoarthritis and Total Joint Arthroplasty in Housing Insecure Patients at a Safety-Net Hospital in a Major Urban City

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Stanford University
Navigated and Robotic Total Knee Arthroplasty (TKA) Do Not Confer Improved 5-Year Survivorship Compared to Conventional TKA: An Analysis from the American Joint Replacement Registry (AJRR)

Karch M. Smith, MD

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Combined Root and Body (CRAB) Lateral Meniscus Tears in the Adolescent Population: An Underrecognized and Underreported Tear Pattern

Presenters' Choice

Oliver Dong, MD

San Francisco Orthopaedic Residency Program at University of California, San Francisco Health St. Mary's Hospital
Osteochondral Autograft from the Proximal Tibiofibular Joint for Reconstruction of Acute Tibial Plateau Fractures with Severe Chondral Defects

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Characteristics and Recurrence Risk of Upper Extremity Soft Tissue Sarcoma

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Outcomes from a Prospective Randomized
Clinical Trial*

Chris Chermiside-Scabbo, MD

University of Minnesota

*Better Functional Scores in Arthroscopic
Assisted Percutaneous Fixation Than Open
Reduction Internal Fixation of Lateral Tibial
Plateau Fractures*