



Thomas Caruso

Professor of Anesthesiology, Perioperative and Pain Medicine (Pediatric)

CLINICAL OFFICE (PRIMARY)

- **Center for Academic Medicine Pediatric Anesthesia**

453 Quarry Rd

MC5663

Palo Alto, CA 94304

Tel (650) 723-5728

Fax (650) 725-8544

Bio

BIO

Dr. Thomas Caruso specializes in the treatment of pediatric anesthesiology. Dr. Caruso has a special interest in regional anesthesia, quality and safety, medical education, and immersive technologies used for childhood pain and anxiety reduction.

CLINICAL FOCUS

- Pediatric Anesthesia
- Pediatric Regional Anesthesia

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Anesthesiology, Perioperative and Pain Medicine
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Director of External Curricular Affairs, Stanford School of Medicine, (2024- present)
- Director Leadership Education in Anesthesiology Program, Stanford School of Medicine, (2023- present)
- Director Pediatric Anesthesiology Fellowship, Stanford School of Medicine, (2021- present)
- Director of the Stanford Chariot Program, Stanford School of Medicine, Lucile Packard Children's Hospital Stanford, (2015- present)
- Graduate Medical Education Faculty Adviser, Stanford University Department of Graduate Medical Education, (2014-2022)
- Co-chair Type IV MOC Portfolio, Lucile Packard Children's Hospital, (2017-2023)
- Co-chair Value Based Selection Committee, Lucile Packard Children's Hospital, (2017-2021)
- Physician Lead for Perioperative Improvement, Lucile Packard Center for Quality and Clinical Effectiveness, (2013-2021)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Academic Association of Core Program Directors, Society of Academic Associations of Anesthesiology and Perioperative Medicine (2021 - present)

- Member, International Pediatric Simulation Society (2019 - present)
- Member, International Anesthesia Research Society (2019 - present)
- Vice-Chair Regional Anesthesia for Cardiac Enhanced Recovery Special Interest Group, American Society of Regional Anesthesia (2018 - 2020)
- Member, Society of Technology in Anesthesiology (2017 - present)
- Member, Anesthesia Patient Safety Foundation (2017 - present)
- Education Committee, California Society of Anesthesiologists (2012 - present)
- Member, Society of Pediatric Anesthesia (2011 - present)
- Member, American Society of Anesthesiologists (2009 - present)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Stanford University Graduate School of Education , Education (2023)
- Master's Degree, Johns Hopkins School of Education , Education for the Health Professional (2015)
- Board Certification: Pediatric Anesthesia, American Board of Anesthesiology (2013)
- Board Certification: Anesthesia, American Board of Anesthesiology (2013)
- Fellowship: Stanford University Pediatric Anesthesia Fellowship (2013) CA
- Residency: Massachusetts General Hospital (2012) MA
- Internship: Kaiser Permanente Santa Clara Internal Medicine Residency (2009) CA
- Medical Education: Stanford University School of Medicine (2008) CA
- Bachelor of Science, University of Virginia , Chemistry with a subspecialty in Biochemistry, High Distinction (2004)

COMMUNITY AND INTERNATIONAL WORK

- Invincikids

LINKS

- Stanford Chariot Program: <http://chariot.stanford.edu>
- Stanford Chariot Lab: <https://chariotlab.stanford.edu/>
- Stanford Pediatric Anesthesiology: <http://med.stanford.edu/pedsanesthesia.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research pursuits are focused on system based improvement projects. At Lucile Packard Children's Hospital Stanford, I use system based approaches to improve the quality of care patients receive in the perioperative area and in the ICUs, with a focus on safe transitions of care. Through the Department of Graduate Medical Education at Stanford School of Medicine, I advise residency and fellowship programs on evidence based methods to improve their programs, with a focus on mentorship.

CLINICAL TRIALS

- iMOVE: Virtual Reality PT Versus Traditional PT, Recruiting
- Virtual Reality as a Self-Efficacy Intervention, Recruiting
- Evaluation of Technology-Based Stress Reduction Techniques Prior to Vascular Access, Not Recruiting
- HRAD-Vascular Access, Not Recruiting
- Screen-Based Distraction Tool for Preoperative Preparation, Not Recruiting
- Technology-Based Distractions During Minor Procedures, Not Recruiting

- Transnasal Humidified Rapid-Insufflation Ventilatory Exchange (THRIVE) Use in Pediatric Procedures, Not Recruiting
- VR Usage in Non-Invasive Surgical Sub-Specialty Procedures, Not Recruiting
- A Novel Auditory Application for Distraction in Pediatric Patients, Not Specified
- Augmented Reality (AR) Hong Kong, Not Specified

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Andrew Huang

E4C Mentor

Isaac Applebaum, Beshar Ashouri, Gabriela Asturias, Alexander Berg, Jacky Chu, Alexander Doan, Ritika Dutta, Rami Ezzibdeh, Marie Ferrara, Mia Fowler, Paul Harary, Andrew Huang, Lauren Joseph, Clare Kennedy, Katherine Liu, Christopher Lopez, Yuncong Mao, Vanessa Nava, Becca Nelson, Hieu Nguyen, Chloe Noh, Daisheau Player, Navika Shukla, Tobin Stauffer, Overbeck Christian Takou Mbah, Gerald Tiu, Helen Xu, Nova Xu, Chenming Zheng

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Anesthesia (Fellowship Program)
- Pediatric Anesthesia (Fellowship Program)

Publications

PUBLICATIONS

- **Virtual Reality Education for Hospitalized Pediatric Patients Improves Intrinsic Motivation: A Prospective, Randomized Crossover Study.** *Clinical pediatrics*
Collins, F., Moya, E., Rojas-Pino, M. S., Zuniga-Hernandez, M., Arshad, F., Feng, R., Wang, E. Y., Rodriguez, S. T., Jackson, C., Caruso, T. J.
2026: 99228261460362
- **Remote Augmented Reality Versus Traditional Simulation for Team Leader Assessment in a Cardiac Arrest Scenario: Noninferiority Randomized Controlled Trial.** *JMIR medical education*
Gianotto-Oliveira, R., Rojas, M., Queiroz, M., Zanchetta, F., Ferrari, A., Kojima, L., Paula, A., Campos, B., Cecilio-Fernandes, D., Caruso, T. J.
2026; 12: e84367
- **Sound and Third-Person Perspective in Virtual Reality Improves Awe: A Prospective Study of Hospitalized Children and Caregivers.** *Games for health journal*
He, E. M., Suen, A. M., Liu, P., Zuniga-Hernandez, M., Feng, R., Gardner, K., Jackson, C., Rodriguez, S. T., Wang, E., Caruso, T. J.
2026: 2161783X261421429
- **Non-technical skill performance during remote, international, augmented-reality neonatal resuscitation protocol simulations: a feasibility study.** *BMC medical education*
Rojas, M., Yun, R., Rama, A., Plane, J., Arancibia, C., Paredes, P., Penna, A., Zhao, Y., Caruso, T. J.
2026
- **Transnasal humidified rapid-insufflation ventilatory exchange (THRIVE) use in a pediatric population: A prospective, randomized controlled trial.** *Journal of clinical anesthesia*
Wang, E. Y., Renuart, A. J., Flynn, S. G., Van Pelt, H., Devavaram, P., Bulich, L. A., Stein, M. L., Ravula, N. R., Dhamrait, R. S., Kennedy, K. M., Suen, M. Y., Jackson, C., Gupta, et al
2026; 109: 112117
- **Augmented Reality Medical Simulation: A Multi-Site Study of Factors That Influence Acceptance.** *Paediatric anaesthesia*
Wang, E. Y., Castro, S., Zhang, L., Suen, M. Y., Parris, M., Marks, A., Weser, V., Longhini, A. B., Strupp, K. M., Hernandez, M. R., Libaw, J. S., Kupiec-Weglinski, S., Lockhart, et al

2025

- **Vibration therapy during needle procedures improves pain sensitivity while worsening pain threshold: A randomized, crossover study of healthy volunteers.** *The journal of vascular access*
Rodriguez, S. T., Sheira, D., Castro, S., Zuniga-Hernandez, M., Wang, E. Y., Gardner, K., Hijazi, M., Shang, L., Nguyen, H., Stacey, H., Young, L., Cocanower, C., Chriss, et al
2025: 11297298251366739
- **Virtual reality compared to nitrous oxide for labor analgesia: A feasibility pilot, prospective, randomized, cross-over, non-inferiority study.** *International journal of obstetric anesthesia*
Yun, R., Arce, D., Bekemeyer, Z. J., Michel, G., Nan, G., Hoang, D. B., Caruso, T. J., Carvalho, B.
2025; 64: 104758
- **Transforming anaesthesia education with extended reality: from preclinical training to independent clinical practice.** *Anaesthesia reports*
Rama, A., Wainwright, K., Caruso, T. J.
2025; 13 (1): e70016
- **Virtual Reality as a Dietary Education Adjunct for Pediatric Patients With Obesity: A Pragmatic, Randomised Pilot Study.** *Journal of human nutrition and dietetics : the official journal of the British Dietetic Association*
Abu El Hajja, M., Barsanti, N., Cotter, E., Zuniga-Hernandez, M., Titzler, J., Jackson, C., Caruso, T. J.
2025; 38 (2): e70054
- **AMXRA Guidelines on Extended Reality (XR) and Children: Considerations for Safe and Effective Application Development and Use.** *Journal of medical extended reality*
Marks, A., Weser, V., Caruso, T. J., Persky, S., Homer, A., Gold, J., Williamson, E., Hieftje, K.
2025; 2 (1): 104-113
- **Culturally Sensitive Treatment of Caregiver Anxiety With Virtual Reality: A Prospective, Pragmatic, Randomized Study.** *Journal of patient experience*
Jimenez, R. T., Zuniga-Hernandez, M., Suen, M. Y., Feng, R., Pinedo, K., Arshad, F., Collins, F., Ganesan, A., Jackson, C., Wang, E. Y., Rodriguez, S. T., Caruso, T. J.
2025; 12: 23743735251326671
- **Virtual Reality Therapeutic Art for Adult Hospitalized Patients and Caregivers: A Mixed-Methods Project.** *Journal of patient experience*
McDaniel, S., Pines, R., He, E. M., Collins, F., Arshad, F., Menendez, M., Prabhu, V. G., Caruso, T. J.
2025; 12: 23743735251330467
- **Rescuing failed direct laryngoscopy in children: one size does not fit all.** *Anaesthesia*
Evans, M. A., Caruso, T. J.
2025
- **Virtual reality improves pain threshold and recall in healthy adults: A randomized, crossover study.** *Journal of clinical anesthesia*
Rodriguez, S. T., Jimenez, R. T., Wang, E. Y., Zuniga-Hernandez, M., Titzler, J., Jackson, C., Suen, M. Y., Yamaguchi, C., Ko, B., Kong, J. T., Caruso, T. J.
2025; 103: 111816
- **The Physiologic Effect of Augmented Reality Simulation Versus Traditional Simulation: A Noninferiority, Randomized Controlled Trial.** *The journal of education in perioperative medicine : JEPM*
Rama, A., Rojas-Pino, M. S., Wang, E. Y., Rodriguez, S. T., Suen, M. Y., Titzler, J. S., Zuniga-Hernandez, M., Jackson, C., Rosales, O., Collins, F., Caruso, T. J.
2025; 27 (1): E740
- **Innovation in Simulation: Using Augmented Reality and Artificial Intelligence for Human Centered Medical Education** *Medical Research Archives*
Rama, A., Caruso, T. J.
2025; 13 (7)
- **Writing an Effective Research Abstract: A Step-by-Step Guide** *Open Anesthesia*
Rama, A., Caruso, T. J.
2025

- **Acceptance of Virtual Reality in Trainees Using a Technology Acceptance Model: Survey Study.** *JMIR medical education*
Wang, E. Y., Qian, D., Zhang, L., Li, B. S., Ko, B., Khoury, M., Renavikar, M., Ganesan, A., Caruso, T. J.
2024; 10: e60767
- **A prospective, observational study of a pediatric affect and cooperation scale (HRAD±) for vascular access procedures.** *The journal of vascular access*
Yun, R., Kennedy, K. M., Titzler, J., Ganesan, A., Yamaguchi, C., Zuniga-Hernandez, M., Renavikar, M., Brinda, R., Jackson, C., Rohovit, S., Caruso, T. J.
2024: 11297298241302897
- **Pro-Con Debate: Virtual Reality Compared to Augmented Reality for Medical Simulation.** *Anesthesia and analgesia*
Caruso, T. J., Rama, A., Uribe-Marquez, S., Mitchell, J. D.
2024
- **A technology acceptance model to predict anesthesiologists' clinical adoption of virtual reality.** *Journal of clinical anesthesia*
Wang, E. Y., Kennedy, K. M., Zhang, L., Zuniga-Hernandez, M., Titzler, J., Li, B. S., Arshad, F., Khoury, M., Caruso, T. J.
2024; 98: 111595
- **Identification and Treatment of Pediatric Perioperative Anxiety.** *Anesthesiology*
Yun, R., Caruso, T. J.
2024
- **Response to the Letter to the Editor Regarding 'Let Kids Play: Using Virtual Reality as a Substitute for General Anesthesia for Minor Procedures in Pediatric Population'.** *Journal of pediatric surgery*
Salimi-Jazi, F., Sabapaty, A., Dalusag, K. S., Abrajano, C., Nguyen, J., Robinson, B., Caruso, T. J., Rodriguez, S., Hartman, G., Chao, S. D.
2024: 161685
- **Awe Inducing Elements in Virtual Reality Applications: A Prospective Study of Hospitalized Children and Caregivers.** *Games for health journal*
He, E. M., Arshad, F., Li, B. S., Brinda, R., Ganesan, A., Zhang, L., Fehr, S., Renavikar, M., Rodriguez, S. T., Wang, E., Rosales, O., Caruso, T. J.
2024
- **Virtual Reality Facilitated Exercise Increases Sympathetic Activity and Reduces Pain Perception: A Randomized Crossover Study.** *American journal of physical medicine & rehabilitation*
Rodriguez, S. T., Makarewicz, N., Wang, E. Y., Zuniga-Hernandez, M., Titzler, J., Jackson, C., Suen, M. Y., Rosales, O., Caruso, T. J.
2024
- **Augmented Reality Improves Pediatric Mask Induction: A Prospective, Matched Case-Control Study.** *Journal of patient experience*
Yun, R., He, E. M., Zuniga, M., Guo, N., Wang, E. Y., Ho, F., Pearson, M., Rodriguez, S. T., Caruso, T. J.
2024; 11: 23743735241241146
- **A prospective, observational validation of HRAD±, a novel pediatric affect and cooperation scale.** *Journal of clinical anesthesia*
Yun, R., Qian, D., Wang, E., Zuniga, M., Forbes, T., Li, B., Rodriguez, S. T., Jackson, C., Caruso, T. J.
2024; 94: 111410
- **Let Kids Play: Using Virtual Reality as a Substitute for General Anesthesia for Minor Procedures in Pediatric Population.** *Journal of pediatric surgery*
Salimi-Jazi, F., Sabapaty, A., Santos Dalusag, K., Abrajano, C., Nguyen, J., Robinson, B., Caruso, T. J., Rodriguez, S., Hartman, G., Chao, S. D.
2024
- **Reducing Preoperative Caregiver Anxiety With Virtual Reality: A Pragmatic, Randomized Controlled Study.** *Journal of patient experience*
Fonseca, A., Qian, D., Forbes, T., Li, B. S., Lee, C., Burdsall, K., Rodriguez, S., Jackson, C., Wang, E. Y., Caruso, T. J.
2024; 11: 23743735231220190
- **Virtual reality for perioperative anxiety treatment in a resource-variable setting: an observational trial** *SOUTHERN AFRICAN JOURNAL OF ANAESTHESIA AND ANALGESIA*
Connell, J., Anito, M. F., Kageha, E., Caruso, T. J., Jackson, C., Sund, G., Kynes, J. M., Nourian, M. M.
2024; 30 (6): 180-184
- **Enhancement of Immersive Technology Use in Pediatric Health Care With Accessible, Context-Specific Training: Descriptive Feasibility Study** *JMIR XR and Spatial Computing*

- Li, B., Fereday, B., Wang, E., Rodriguez, S., Forssell, K., Bollaert, A., Menendez, M., Caruso, T. J.
2024; 1
- **A Quality Improvement Project to Improve the Utilization of an Intraoperative Rapid Response System.** *Pediatric quality & safety*
Rama, A., Qian, D., Forbes, T., Wang, E., Knight, L., Berg, M., Caruso, T. J.
2023; 8 (6): e686
 - **Innovating pediatric care with social robots to alleviate anxiety.** *Paediatric anaesthesia*
Nguyen, T., Yamaguchi, C., Tilton, L., Caruso, T.
2023
 - **Predicting pediatric healthcare provider use of virtual reality using a technology acceptance model.** *JAMIA open*
Wang, E. Y., Kennedy, K. M., Zhang, L., Qian, D., Forbes, T., Zuniga-Hernandez, M., Li, B. S., Domingue, B., Caruso, T. J.
2023; 6 (3): ooad076
 - **Virtual reality facilitated exercise improves pain perception: A crossover study.** *Journal of clinical anesthesia*
Rodriguez, S. T., Makarewicz, N., Wang, E. Y., Zuniga-Hernandez, M., Titzler, J., Jackson, C., Suen, M. Y., Rosales, O., Caruso, T. J.
2023; 91: 111257
 - **Enhancing Telemedicine Perioperative Simulations Using Augmented Reality.** *The journal of education in perioperative medicine : JEPM*
Rama, A., Tsai, A. H., Caruso, T. J.
2023; 25 (3): E711
 - **Participant Perceptions of Augmented Reality Simulation for Cardiac Anesthesiology Training: A Prospective, Mixed-Methods Study.** *The journal of education in perioperative medicine : JEPM*
Tsai, A., Bodmer, N., Hong, T., Frackman, A., Hess, O., Khoury, M., Jackson, C., Caruso, T. J.
2023; 25 (3): E712
 - **Prehospital Pediatric Emergency Training Using Augmented Reality Simulation: A Prospective, Mixed Methods Study.** *Prehospital emergency care*
Friedman, N., Zuniga-Hernandez, M., Titzler, J., Suen, M. Y., Wang, E., Rosales, O., Graham, J., D'Souza, P., Menendez, M., Caruso, T. J.
2023: 1-18
 - **Preoperative Anxiety in Children** *Open Anesthesia*
Yun, R., Caruso, T. J.
2023; <https://www.openanesthesia.org/keywords/preoperative-anxiety-in-children/>
 - **Integrating leadership into interprofessional non-acute care pediatric provider resuscitation training.** *Journal of clinical and translational research*
Gupta, R., Topozini, C., Caruso, T. J., Lobos, A. T.
2022; 8 (6): 499-505
 - **Virtual Reality-Augmented Physiotherapy for Chronic Pain in Youth: Protocol for a Randomized Controlled Trial Enhanced With a Single-Case Experimental Design.** *JMIR research protocols*
Simons, L. E., Hess, C. W., Choate, E. S., Van Orden, A. R., Tremblay-McGaw, A. G., Menendez, M., Boothroyd, D. B., Parvathinathan, G., Griffin, A., Caruso, T. J., Stinson, J., Weisman, A., Liu, et al
2022; 11 (12): e40705
 - **What every anesthesiologist should know about virtual reality.** *Paediatric anaesthesia*
Rodriguez, S., Caruso, T. J.
2022; 32 (12): 1276-1277
 - **Assessing Pediatric Perioperative Affect: A Concise Review of Research and Clinically Relevant Scales.** *Paediatric anaesthesia*
Yun, R., Hess, O., Kennedy, K., Stricker, P. A., Blake, L., Caruso, T. J.
2022
 - **Use of virtual reality for targeted physical rehabilitation: Case report on managing functional motor disorder.** *Journal of pediatric rehabilitation medicine*
Nguyen, A. T., Hemphill, S., Donahue, B., Menendez, M., Rodriguez, S., Caruso, T. J.
2022

- **Virtual Immersion into a Poorly-Managed Medical Crisis Worsens Subsequent Performance: A Randomized, Controlled Trial** *CLINICAL SIMULATION IN NURSING*
Rama, A., Neiman, N., Burdsall, K., Fonseca, A., Lee, C., Domingue, B., Jackson, C., Caruso, T. J.
2022; 70: 47-55
- **Virtual Reality Reduces Fear and Anxiety During Pediatric Orthopaedic Cast Room Procedures: A Randomized Controlled Trial.** *Journal of pediatric orthopedics*
Richey, A. E., Hastings, K. G., Karius, A., Segovia, N. A., Caruso, T. J., Frick, S., Rodriguez, S.
2022
- **Enhanced Recovery After Cleft Palate Repair: A Quality Improvement Project.** *Paediatric anaesthesia*
Esfahanian, M., Marcott, S. C., Hopkins, E., Burkart, B., Khosla, R., Lorenz, H. P., Wang, E., De Souza, E., Algaze-Yojay, C., Caruso, T. J.
2022
- **Communication Skills Training Using Remote Augmented Reality Medical Simulation: a Feasibility and Acceptability Qualitative Study.** *Medical science educator*
Hess, O., Qian, J., Bruce, J., Wang, E., Rodriguez, S., Haber, N., Caruso, T. J.
2022: 1-10
- **Assessing Pediatric Life Support Skills Using Augmented Reality Medical Simulation With Eye Tracking: A Pilot Study.** *The journal of education in perioperative medicine : JEPM*
Qian, J., Rama, A., Wang, E., Wang, T., Hess, O., Khoury, M., Jackson, C., Caruso, T. J.
2022; 24 (3): E691
- **Anesthesiologists With Advanced Degrees in Education: Qualitative Study of a Changing Paradigm.** *JMIR medical education*
Aggarwal, A., Hess, O., Lockman, J. L., Smith, L., Stevens, M., Bruce, J., Caruso, T.
2022; 8 (2): e38050
- **It Takes a Village: A Narrative Review of Anesthesiology Mentorship.** *Anesthesiology clinics*
Tsai, A. H., Bodmer, N. J., Gupta, K., Caruso, T. J.
2022; 40 (2): 301-313
- **Quantifying virtual reality pain modulation in healthy volunteers: A randomized, crossover study.** *Journal of clinical anesthesia*
Neiman, N. R., Falkson, S. R., Rodriguez, S. T., Wang, E. Y., Hemphill, S. F., Khoury, M. E., Kist, M. N., Jackson, C. D., Caruso, T. J.
2022; 80: 110876
- **Perioperative Pediatric Anxiety: A Cry for Universal Scale Adoption.** *Pediatric quality & safety*
Yun, R., Kennedy, K. M., Caruso, T. J.
2022; 7 (2): e542
- **A Pilot Quality Improvement Project to Reduce Intraoperative MRI Hypothermia in Neurosurgical Patients.** *Pediatric quality & safety*
Wong, B. J., Rama, A., Caruso, T. J., Lee, C. K., Wang, E., Chen, M.
2022; 7 (2): e531
- **Systemic lidocaine absorption from continuous erector spinae plane catheters after paediatric posterior spine fusion surgery.** *Regional anesthesia and pain medicine*
Pan, S., Lee, C. K., Caruso, T. J., Vorhies, J. S., Tsui, B. C.
2022
- **Integrated diversity, equity, and inclusion curriculum into pediatric anesthesia fellowship training: Another step forward.** *Paediatric anaesthesia*
Murray, A., Reece-Nguyen, T., Caruso, T. J.
1800
- **Real-time reorientation and cognitive load adjustment allow for broad application of virtual reality in a pediatric hospital.** *Journal of clinical and translational research*
Caruso, T. J., Fonseca, A., Barreau, A., Khoury, M., Menendez, M., Wang, E., Lawrence, K., Jackson, C., Rodriguez, S.
1800; 7 (6): 750-753
- **Use of Bedside Entertainment and Relaxation Theater (BERT) to Reduce Fear and Anxiety Associated With Outpatient Procedures in Pediatric Orthopaedics.** *Journal of pediatric orthopedics*

- Richey, A. E., Khoury, M., Segovia, N. A., Hastings, K. G., Caruso, T. J., Frick, S., Rodriguez, S.
2021
- **Development and assessment of an efficient pediatric affect and cooperation scale.** *Journal of clinical anesthesia*
Kennedy, K., Wang, E., Rodriguez, S. T., Qian, J., Khoury, M., Kist, M. N., Jackson, C., Yun, R., Caruso, T. J.
2021; 76: 110569
 - **Small surgeries, big smiles: using virtual reality to reduce the need for sedation or general anesthesia during minor surgical procedures.** *Pediatric surgery international*
Taylor, J. S., Chandler, J. M., Menendez, M., Diyaolu, M., Austin, J. R., Gibson, M. L., Portelli, K. I., Caruso, T. J., Rodriguez, S., Chao, S. D.
2021
 - **The Physiologic and Emotional Effects of 360-Degree Video Simulation on Head-Mounted Display Versus In-Person Simulation: A Noninferiority, Randomized Controlled Trial.** *Simulation in healthcare : journal of the Society for Simulation in Healthcare*
Caruso, T. J., Armstrong-Carter, E., Rama, A., Neiman, N., Taylor, K., Madill, M., Lawrence, K., Hemphill, S. F., Guo, N., Domingue, B. W.
2021
 - **Mindfulness-Based Virtual Reality Intervention for Children and Young Adults with Inflammatory Bowel Disease: A Pilot Feasibility and Acceptability Study** *CHILDREN-BASEL*
Wren, A. A., Neiman, N., Caruso, T. J., Rodriguez, S., Taylor, K., Madill, M., Rives, H., Nguyen, L.
2021; 8 (5)
 - **Unique considerations of virtual reality utilization for perioperative pediatric patients.** *Paediatric anaesthesia*
Yuan, J. C., Rodriguez, S., Caruso, T. J.
2021; 31 (3): 377-78
 - **A pilot, randomized controlled trial of telementorship: A useful tool during social distancing.** *Journal of clinical and translational research*
Prionas, N. D., Kung, T. H., Dohn, A., Piro, N., von Eyben, R., Katznelson, L., Caruso, T. J.
2021; 7 (1): 66-71
 - **Integrated eye tracking on Magic Leap One during augmented reality medical simulation: a technical report.** *BMJ simulation & technology enhanced learning*
Caruso, T. J., Hess, O., Roy, K., Wang, E., Rodriguez, S., Palivathukal, C., Haber, N.
2021; 7 (5): 431-434
 - **Alternating Side Programmed Intermittent Repeated (ASPIRe) Bolus Regimen for Delivering Local Anesthetic via Bilateral Interfascial Plane Catheters.** *Journal of cardiothoracic and vascular anesthesia*
Tsui, B. C., Brodt, J., Pan, S., Caruso, T. J., Kim, R., Horn, J. L., Boublik, J., Tsui, J. H.
2021
 - **Virtual Reality Reduces Pediatric Anxiety During Food Allergy Clinical Trials: A Pilot Randomized, Pragmatic Study.** *Frontiers in allergy*
Alonzi, S., Caruso, T. J., Sindher, S. B., Cao, S., Varadharajulu, S., Collins, W. J., Chinthrajah, R. S.
2021; 2: 779804
 - **Leveraging VR/AR to combat chronic pain in youth: Position paper from the Interdisciplinary Network on Virtual and Augmented (AR/VR) Technologies for Pain (INOVATE-Pain) Management.** *Journal of medical Internet research*
Logan, D. E., Simons, L. E., Caruso, T. n., Gold, J. I., Greenleaf, W. n., Griffin, A. n., King, C. n., Menendez, M. n., Olbrecht, V. n., Rodriguez, S. n., Silvia, M. n., Stinson, J. n., Wang, et al
2021
 - **Publication misrepresentation amongst pediatric anesthesiology fellowship applicants: A retrospective single center cohort study.** *Paediatric anaesthesia*
Mehta, A., Patel, P., Caruso, T. J., Anderson, T. A.
2021
 - **Virtual reality for pediatric perioperative care.** *Current opinion in anaesthesiology*
Wang, E. n., Thomas, J. J., Rodriguez, S. T., Kennedy, K. M., Caruso, T. J.
2021; 34 (3): 284-91
 - **Virtual Reality Facilitates Engagement in Physical Therapy in the Pediatric CVICU.** *Pediatric physical therapy : the official publication of the Section on Pediatrics of the American Physical Therapy Association*

- Hemphill, S. n., Nguyen, A. n., Kwong, J. n., Rodriguez, S. T., Wang, E. n., Caruso, T. J.
2021; 33 (1): E7–E9
- **Virtual Reality Augments Movement during Physical Therapy: A Pragmatic Randomized Trial.** *American journal of physical medicine & rehabilitation*
Hemphill, S. n., Rodriguez, S. n., Wang, E. n., Koeppen, K. n., Aitken-Young, B. n., Jackson, C. n., Simons, L. n., Caruso, T. J.
2021
 - **Virtual Reality in Pain Rehabilitation for Youth With Chronic Pain: Pilot Feasibility Study.** *JMIR rehabilitation and assistive technologies*
Griffin, A., Wilson, L., Feinstein, A. B., Bortz, A., Heirich, M. S., Gilkerson, R., Wagner, J. F., Menendez, M., Caruso, T. J., Rodriguez, S., Naidu, S., Golianu, B., Simons, et al
2020; 7 (2): e22620
 - **Transnasal Humidified Rapid-Insufflation Ventilatory Exchange in pediatric bronchoscopy: A prospective pilot study.** *Journal of clinical anesthesia*
Caruso, T. J., O'Connell, C., Qian, J., Menendez, M., Fonseca, A., Lawrence, K., Sidell, D. R., Darling, C., Tsui, B.
2020; 68: 110086
 - **The virtual visit: Using immersive technology to visit hospitals during social distancing and beyond.** *Paediatric anaesthesia*
Dinh, A., Furukawa, L., Caruso, T. J.
2020; 30 (8): 954–56
 - **A Retrospective Cohort Study of Predictors and Interventionsthat Influence Cooperation with Mask Induction in Children.** *Paediatric anaesthesia*
Marquez, J. L., Wang, E., Rodriguez, S. T., O'Connell, C., Munshey, F., Darling, C., Tsui, B., Caruso, J., Caruso, T. J.
2020
 - **A Quality Improvement Project to Reduce Combination Acetaminophen-opioid Prescriptions to Pediatric Orthopedic Patients.** *Pediatric quality & safety*
Caruso, T. J., Trivedi, S., Chadwick, W., Gaskari, S., Wang, E., Marquez, J., Lagasse, S., Bailey, M., Shea, K.
2020; 5 (3): e291
 - **From Socrates to Virtual Reality: A Historical Review of Learning Theories and Their Influence on the Training of Anesthesiologists.** *The journal of education in perioperative medicine : JEPM*
Caruso, T. J., Qian, J., Lawrence, K., Armstrong-Carter, E., Domingue, B. W.
2020; 22 (2): E638
 - **Retrospective Review of the Safety and Efficacy of Virtual Reality in a Pediatric Hospital.** *Pediatric quality & safety*
Caruso, T. J., O'Connell, C., Qian, J. J., Kung, T., Wang, E., Kinnebrew, S., Pearson, M., Kist, M., Menendez, M., Rodriguez, S. T.
2020; 5 (2): e293
 - **Mobilization and calibration of the HTC VIVE for virtual reality physical therapy.** *Digital health*
Hemphill, S., Nguyen, A., Rodriguez, S. T., Menendez, M., Wang, E., Lawrence, K., Caruso, T. J.
2020; 6: 2055207620950929
 - **Prospective Evaluation of the Safety and Efficacy of THRIVE for Children Undergoing Airway Evaluation.** *Pediatric quality & safety*
Okland, T. S., Liu, G. S., Caruso, T. J., Sidell, D. R.
2020; 5 (5): e348
 - **Introduction of the EMR-integrated I-PASS ICU Handoff Tool.** *Pediatric quality & safety*
Caruso, T. J., Su, F. n., Wang, E. n.
2020; 5 (4): e334
 - **Using Augmented Reality to Reduce Fear and Promote Cooperation During Pediatric Otolaryngologic Procedures.** *The Laryngoscope*
Caruso, T. J., Madill, M. n., Sidell, D. n., Meister, K. n., Wang, E. n., Menendez, M. n., Kist, M. N., Rodriguez, S. n.
2020
 - **Systemic Absorption of Lidocaine from Continuous Erector Spinae Plane Catheters After Congenital Cardiac Surgery: A Retrospective Study.** *Journal of cardiothoracic and vascular anesthesia*
Caruso, T. J., Lin, C. n., O'Connell, C. n., Weiss, D. n., Md, G. B., Wu, M. n., Kwiatkowski, D. n., Maeda, K. n., Tsui, B. C.
2020

- **Near Miss in Intraoperative Magnetic Resonance Imaging: A Case for In Situ Simulation.** *Pediatric quality & safety*
Rama, A., Knight, L. J., Berg, M., Chen, M., Gonzales, R., Delhagen, T., Copperman, L., Caruso, T. J.
2019; 4 (6): e222
- **A Pilot Quality Improvement Project to Reduce Preoperative Fasting Duration in Pediatric Inpatients.** *Pediatric quality & safety*
Nye, A., Conner, E., Wang, E., Chadwick, W., Marquez, J., Caruso, T. J.
2019; 4 (6): e246
- **Virtual reality successfully provides anxiolysis to laboring women undergoing epidural placement.** *Journal of clinical anesthesia*
Kist, M., Bekemeyer, Z., Ralls, L., Carvalho, B., Rodriguez, S. T., Caruso, T. J.
2019: 109635
- **Regional anesthesia for cardiac surgery.** *Current opinion in anaesthesiology*
Caruso, T. J., Lawrence, K., Tsui, B. C.
2019
- **A Sustainable and Effective Mentorship Model for Graduate Medical Education Programs.** *Journal of graduate medical education*
Caruso, T. J., Kung, T., Piro, N., Li, J., Katznelson, L., Dohn, A.
2019; 11 (2): 221-225
- **Varying Screen Size for Passive Video Distraction During Induction of Anesthesia in Low Risk Children: A Pilot Randomized Controlled Trial.** *Paediatric anaesthesia*
Rodriguez, S., Jang, O., Hernandez, J. M., George, A. J., Caruso, T. J., Simons, L.
2019
- **Accreditation Improves Quality of Oncology Education in Low- and Middle-Income Countries: Perspectives of African Oncologists.** *Journal of cancer education : the official journal of the American Association for Cancer Education*
Hammad, N., Stockley, D., Hastings-Truelove, A., Vanderpuye, V., Rubagumya, F., Caruso, T.
2019
- **Toward Opioid-Free Fast Track for Pediatric Congenital Cardiac Surgery.** *Journal of cardiothoracic and vascular anesthesia*
Esfahanian, M., Caruso, T. J., Lin, C., Kuan, C., Purkey, N. J., Maeda, K., Tsui, B. C.
2019
- **Transnasal Humidified Rapid Insufflation Ventilatory Exchange (THRIVE) augments oxygenation in children with cyanotic heart disease during microdirect laryngoscopy and bronchoscopy.** *Journal of clinical anesthesia*
Caruso, T. J., Sidell, D. R., Lennig, M., Menendez, M., Fonseca, A., Rodriguez, S. T., Tsui, B.
2019; 56: 53–54
- **Speeding the Detection of Vessel Cannulation: An In-Vitro Stimulation Study.** *Anesthesia and analgesia*
Muffly, M. K., Ku, A., Drover, D. R., Rodriguez, S., Caruso, T. J., Ku, A., Tsui, B. C.
2019
- **Operating Room Codes Redefined: A Highly Reliable Model Integrating the Core Hospital Code Team.** *Pediatric quality & safety*
Caruso, T. J., Rama, A. n., Knight, L. J., Gonzales, R. n., Munshey, F. n., Darling, C. n., Chen, M. n., Sharek, P. J.
2019; 4 (3): e172
- **Intraoperative Methadone Is Associated with Decreased Perioperative Opioid Use Without Adverse Events: A Case-Matched Cohort Study.** *Journal of cardiothoracic and vascular anesthesia*
Robinson, J. D., Caruso, T. J., Wu, M. n., Kleiman, Z. I., Kwiatkowski, D. M.
2019
- **Virtual Reality during Pediatric Vascular Access: A Pragmatic, Prospective Randomized, Controlled Trial.** *Paediatric anaesthesia*
Caruso, T. J., George, A. n., Menendez, M. n., De Souza, E. n., Khoury, M. n., Kist, M. N., Rodriguez, S. T.
2019
- **A multifaceted quality improvement project improves intraoperative redosing of surgical antimicrobial prophylaxis during pediatric surgery.** *Paediatric anaesthesia*
Colletti, A. A., Wang, E. n., Marquez, J. L., Schwenk, H. T., Yeverino, C. n., Sharek, P. J., Caruso, T. J.
2019

- **Crowd Sourced Assessment of Ureteroscopy with Laser Lithotripsy video feed does not correlate with Trainee Experience.** *Journal of endourology*
Conti, S. L., Brubaker, W., Chung, B. I., Sofer, M., Hsi, R. S., Shinghal, R., Elliott, C. S., Caruso, T., Leppert, J. T.
2018
- **The erector spinae plane (ESP) block: A pooled review of 242 cases.** *Journal of clinical anesthesia*
Tsui, B. C., Fonseca, A., Munshey, F., McFadyen, G., Caruso, T. J.
2018; 53: 29–34
- **Programmed Intermittent Bolus Regimen for Erector Spinae Plane Blocks in Children: A Retrospective Review of a Single-Institution Experience.** *Anesthesia and analgesia*
Munshey, F., Caruso, T. J., Wang, E. Y., Tsui, B. C.
2018
- **Safety Stop: A Valuable Addition to the Pediatric Universal Protocol** *JOINT COMMISSION JOURNAL ON QUALITY AND PATIENT SAFETY*
Caruso, T. J., Munshey, F., Aldorfer, B., Sharek, P. J.
2018; 44 (9): 552–56
- **The successful application of high flow nasal oxygen during microdirect laryngoscopy and bronchoscopy in patients under 7#kg.** *Journal of clinical anesthesia*
Caruso, T. J., Gupta, A., Sidell, D. R., Darling, C., Rodriguez, S., Fonseca, A., Tsui, B.
2018; 52: 27–28
- **A Retrospective Review of a Bed-mounted Projection System for Managing Pediatric Preoperative Anxiety.** *Pediatric quality & safety*
Caruso, T. J., Tsui, J. H., Wang, E., Scheinker, D., Sharek, P. J., Cunningham, C., Rodriguez, S. T.
2018; 3 (4): e087
- **Improving Satisfaction with Pediatric Pain Management by Inviting the Conversation.** *Joint Commission journal on quality and patient safety*
Caruso, T. J., Kung, T. H., Good, J. n., Taylor, K. n., Ashland, M. n., Cunningham, C. n., Gonzalez, E. n., Wood, M. n., Sharek, P. n.
2018; 44 (4): 227–32
- **A Postoperative Care Bundle Reduces Surgical Site Infections in Pediatric Patients Undergoing Cardiac Surgeries.** *Joint Commission journal on quality and patient safety*
Caruso, T. J., Wang, E. Y., Schwenk, H. n., Marquez, J. L., Cahn, J. n., Loh, L. n., Schaffer, J. n., Chen, K. n., Wood, M. n., Sharek, P. J.
2018
- **Intraoperative antibiotic redosing compliance and the extended postoperative recovery period: often overlooked areas that may reduce surgical site infections.** *Paediatric anaesthesia*
Caruso, T. J., Wang, E. n., Colletti, A. A., Sharek, P. J.
2018
- **Lumbar erector spinae plane catheter via a thoracic approach for iliac crest autograft in a pediatric patient.** *Journal of clinical anesthesia*
Darling, C. E., Lin, C. n., Caruso, T. J., Tsui, B. C.
2018; 54: 164–65
- **Augmented reality for intravenous access in an autistic child with difficult access.** *Paediatric anaesthesia*
Rodriguez, S. n., Munshey, F. n., Caruso, T. J.
2018; 28 (6): 569–70
- **Cervical erector spinae plane block catheter using a thoracic approach: an alternative to brachial plexus blockade for forequarter amputation.** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*
Tsui, B. C., Mohler, D. n., Caruso, T. J., Horn, J. L.
2018
- **Bilateral automatized intermittent bolus erector spinae plane analgesic blocks for sternotomy in a cardiac patient who underwent cardiopulmonary bypass: A new era of Cardiac Regional Anesthesia.** *Journal of clinical anesthesia*
Tsui, B. C., Navaratnam, M. n., Boltz, G. n., Maeda, K. n., Caruso, T. J.
2018; 48: 9–10
- **Successful directional thoracic erector spinae plane block after failed lumbar plexus block in hip joint and proximal femur surgery.** *Journal of clinical anesthesia*

- Darling, C. E., Pun, S. Y., Caruso, T. J., Tsui, B. C.
2018; 49: 1–2
- **Caution with the Posey® Cufflator™ cuff pressure manometers.** *Paediatric anaesthesia*
Kiberd, M. B., Swenson-Schalkwyk, A. K., Caruso, T. J.
2017; 27 (12): 1279-1280
 - **A quality improvement initiative to optimize dosing of surgical antimicrobial prophylaxis.** *Paediatric anaesthesia*
Caruso, T. J., Wang, E., Schwenk, H. T., Scheinker, D., Yeverino, C., Tweedy, M., Maheru, M., Sharek, P. J.
2017; 27 (7): 702-710
 - **Standardized ICU to OR handoff increases communication without delaying surgery.** *International journal of health care quality assurance*
Caruso, T. J., Marquez, J. L., Gipp, M. S., Kelleher, S. P., Sharek, P. J.
2017; 30 (4): 304-311
 - **Pediatric Postoperative Pulse Oximetry Monitoring During Transport to the Postanesthesia Care Unit Reduces Frequency of Hypoxemia.** *Joint Commission journal on quality and patient safety*
Caruso, T. J., Mokhtari, T. E., Coughlan, M. J., Wu, D. S., Marquez, J. L., Duan, M. n., Freeman, H. n., Giustini, A. n., Tweedy, M. n., Sharek, P. J.
2017; 43 (3): 146–50
 - **Provider-controlled virtual reality experience may adjust for cognitive load during vascular access in pediatric patients.** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*
Yuan, J. C., Rodriguez, S. n., Caruso, T. J., Tsui, J. H.
2017
 - **Interactive video game built for mask induction in pediatric patients.** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*
Rodriguez, S. n., Tsui, J. H., Jiang, S. Y., Caruso, T. J.
2017
 - **Bedside Entertainment and Relaxation Theater: size and novelty does matter when using video distraction for perioperative pediatric anxiety.** *Paediatric anaesthesia*
Rodriguez, S. n., Caruso, T. n., Tsui, B. n.
2017; 27 (6): 668–69
 - **A Strategic Approach to Implementation of Medical Mentorship Programs.** *Journal of graduate medical education*
Caruso, T. J., Steinberg, D. H., Piro, N., Walker, K., Blankenburg, R., Rassbach, C., Marquez, J. L., Katznelson, L., Dohn, A.
2016; 8 (1): 68-73
 - **Implementation of a standardized postanesthesia care handoff increases information transfer without increasing handoff duration.** *Joint Commission journal on quality and patient safety / Joint Commission Resources*
Caruso, T. J., Marquez, J. L., Wu, D. S., Shaffer, J. A., Balise, R. R., Groom, M., Leong, K., Mariano, K., Honkanen, A., Sharek, P. J.
2015; 41 (1): 35-42
 - **Images in clinical medicine. Severe vitamin D deficiency--rickets.** *New England journal of medicine*
Caruso, T. J., Fuzaylov, G.
2013; 369 (9)
 - **Airway management of recovered pediatric patients with severe head and neck burns: a review** *PEDIATRIC ANESTHESIA*
Caruso, T. J., Janik, L. S., Fuzaylov, G.
2012; 22 (5): 462-468
 - **Complementary and Alternative Medicine for Pain: An Evidence-based Review** *CURRENT PAIN AND HEADACHE REPORTS*
Dhanani, N. M., Caruso, T. J., Carinci, A. J.
2011; 15 (1): 39-46
 - **Magnetic resonance Imaging detected renal volume reduction in refluxing and nonrefluxing kidneys** *JOURNAL OF UROLOGY*
Chang, S. L., Caruso, T. J., Shortliffe, L. D.
2007; 178 (6): 2550-2554
 - **Treatment of naturally acquired common colds with zinc: A structured review** *CLINICAL INFECTIOUS DISEASES*
Caruso, T. J., Prober, C. G., Gwaltney, J. M.

2007; 45 (5): 569-574

- **Efficacy of echinilin for the common cold - Echinacea, vitamin C, the common cold, and blinding - Reply** *CLINICAL INFECTIOUS DISEASES*
Caruso, T. J., Gwaltney, J. M.
2005; 41 (5): 763-64
- **Treatment of the common cold with echinacea: A structured review** *CLINICAL INFECTIOUS DISEASES*
Caruso, T. J., Gwaltney, J. M.
2005; 40 (6): 807-810
- **Evaluating Studies of Echinacea of Treating the Common Cold** *Contagion*
Caruso, T. J.
2005; 9: 378-381