



Thomas Caruso

- Clinical Associate Professor, Anesthesiology, Perioperative and Pain Medicine
- Ph.D. Student in Education, admitted Autumn 2019

CLINICAL OFFICES

- **Pediatric Anesthesia**

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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

- Anesthesia
- Pediatric Anesthesia
- Pediatric Regional Anesthesia

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Anesthesiology, Perioperative and Pain Medicine
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Co-chair Type IV MOC Portfolio, Lucile Packard Children's Hospital, (2017- present)
- Co-chair Value Based Selection Committee, Lucile Packard Children's Hospital, (2017- present)
- Graduate Medical Education Faculty Adviser, Stanford University Department of Graduate Medical Education, (2014- present)
- Physician Lead for Perioperative Improvement, Lucile Packard Center for Quality and Clinical Effectiveness, (2013- present)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, International Anesthesia Research Society (2019 - present)
- Member, International Pediatric Simulation Society (2019 - present)
- Vice-Chair Regional Anesthesia for Cardiac Enhanced Recovery Special Interest Group, American Society of Regional Anesthesia (2018 - present)
- 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

- Medical Education: Stanford University School of Medicine (2008) CA
- Master in Education, Johns Hopkins School of Education , Masters Degree in 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
- Bachelor of Science, University of Virginia , Chemistry with a subspecialty in Biochemistry, High Distinction (2004)

LINKS

- CHARIOT Program: <http://chariot.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

- Evaluation of Technology-Based Stress Reduction Techniques Prior to Vascular Access, Recruiting
- Transnasal Humidified Rapid-Insufflation Ventilatory Exchange (THRIVE) Use in Pediatric Procedures, Recruiting
- VR Usage in Non-Invasive Surgical Sub-Specialty Procedures, Recruiting
- Regional Anesthesia for Cardiothoracic Enhanced Recovery (RACER) Study, Not Recruiting
- Screen-Based Distraction Tool for Preoperative Preparation, Not Recruiting
- Technology-Based Distractions During Minor Procedures, Not Recruiting

Teaching

COURSES

2018-19

- The Art of Medical Diagnosis: ANES 72Q (Spr)

2017-18

- The Art of Medical Diagnosis: ANES 72Q (Spr)

STANFORD ADVISEES

Med Scholar Project Advisor

Jimmy Qian, Alex Swanger

E4C Mentor

Andrew Berneshawi, Nicolas Betancourt, Antonio Chahine, Alexander Doan, Holly Elser, Nicholas Friedman, Nergis Khan, Olivia Lansinger, Nirvikalpa Natarajan, Emily Pang, Alexandria Tartt

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

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

Publications

PUBLICATIONS

- **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
- **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
- **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., O'Connell, C., Weiss, D., Md, G. B., Wu, M., Kwiatkowski, D., Maeda, K., Tsui, B. C.
2020
- **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
- **Introduction of the EMR-integrated I-PASS ICU Handoff Tool.** *Pediatric quality & safety*
Caruso, T. J., Su, F., Wang, E.
2020; 5 (4): e334
- **Using Augmented Reality to Reduce Fear and Promote Cooperation During Pediatric Otolaryngologic Procedures.** *The Laryngoscope*
Caruso, T. J., Madill, M., Sidell, D., Meister, K., Wang, E., Menendez, M., Kist, M. N., Rodriguez, S.
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
- **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
- **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., Knight, L. J., Gonzales, R., Munshey, F., Darling, C., Chen, M., 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., Kleiman, Z. I., Kwiatkowski, D. M.
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): 221–25
- **Virtual Reality during Pediatric Vascular Access: A Pragmatic, Prospective Randomized, Controlled Trial.** *Paediatric anaesthesia*
Caruso, T. J., George, A., Menendez, M., De Souza, E., Khoury, M., Kist, M. N., Rodriguez, S. T.
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
- **A multifaceted quality improvement project improves intraoperative redosing of surgical antimicrobial prophylaxis during pediatric surgery.** *Paediatric anaesthesia*
Colletti, A. A., Wang, E., Marquez, J. L., Schwenk, H. T., Yeverino, C., Sharek, P. J., Caruso, T. J.
2019
- **Crowd Sourced Assessment of Ureterscopy 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., Taylor, K., Ashland, M., Cunningham, C., Gonzalez, E., Wood, M., Sharek, P.
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., Marquez, J. L., Cahn, J., Loh, L., Schaffer, J., Chen, K., Wood, M., 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., 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., 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., Munshey, F., 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., 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., Boltz, G., Maeda, K., 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
 - **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., Maher, 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., Freeman, H., Giustini, A., Tweedy, M., 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., Caruso, T. J., Tsui, J. H.
2017
- **Caution with the Posey® Cufflator™ cuff pressure manometers.** *Paediatric anaesthesia*
Kiberd, M. B., Swenson-Schalkwyk, A. K., Caruso, T. J.
2017; 27 (12): 1279–80
- **Interactive video game built for mask induction in pediatric patients.** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*
Rodriguez, S., 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., Caruso, T., Tsui, B.
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