

# Stanford

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## Jeff Choi

Resident in Surgery - General Surgery

### Bio

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#### BIO

General Surgery Resident (2017-). MS in Epidemiology & Clinical Research (2019-2020), and Biomedical Informatics (2020-2022). Ex-president of Surgeons Writing About Trauma. Founding course instructor of SURG238: Practical Introduction to Surgical Research.

My research teams' goals include:

- 1) building and implementing useful clinical prediction tools
- 2) bringing various AI applications (e.g. NLP, vision) to the bedside
- 3) challenging dogma in surgical practice with contemporary data

My passions are advocating for transparency in surgical literature, elevating the quality of clinical machine learning/prediction tool studies, and fostering the growth of the next generation of surgeon data scientists.

#### HONORS AND AWARDS

- 2nd Place, Resident Research Competition, Pacific Coast Surgical Association (2023)
- Division of General Surgery Resident Professional Development Award, Stanford Department of Surgery (2020, 2021)
- CWIS-KLS Martin Resident Research Fellowship in Chest Wall Injury Outcomes, Chest Wall Injury Society (2020)
- Neil and Claudia Doerhoff Scholar, Neil and Claudia Doerhoff fund (2019)
- Travel Scholarship, American Association for the Surgery of Trauma (2018)
- Vascular Surgery Intern of the Year, Stanford Department of Surgery (2018)
- Best Medical Student Research Award, Emile F. Holman Lecture & Research Day (2017)
- Trainee Award, Technological Innovations in Immunology, American Association of Immunologists (2016)
- Best Basic Science Research, World Korean Medical Organization (2014)
- Best Cultural Essay, World Korean Medical Organization (2014)
- Medical Scholars Award, Stanford University School of Medicine (2014)
- Young Innovator Award, American Society of Transplantation (2014)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Member Council, American Association for the Surgery of Trauma (2023 - present)
- Chair, Scholarship and Development Committee, American Association for the Surgery of Trauma- Associate Members (2023 - present)

- Manuscript and Literature Review Committee, Eastern Association for the Surgery of Trauma (2023 - present)
- Healthcare Economics Committee, American Association for the Surgery of Trauma (2023 - present)
- Publications Committee, Chest Wall Injury Society (2022 - present)
- Research Committee, Chest Wall Injury Society (2021 - present)

## MEMBERSHIP ORGANIZATIONS

- Stanford Healthcare Consulting Group, Senior Partner

## PROFESSIONAL EDUCATION

- Internship (General Surgery), Stanford University

## Publications

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### PUBLICATIONS

- **Development and Validation of a Model to Quantify Injury Severity in Real Time.** *JAMA network open*  
Choi, J., Vendrow, E. B., Moor, M., Spain, D. A.  
2023; 6 (10): e2336196
- **TraumaICDBERT, A Natural Language Processing Algorithm to Extract Injury ICD-10 Diagnosis Code from Free Text.** *Annals of surgery*  
Choi, J., Chen, Y., Sivura, A., Vendrow, E. B., Wang, J., Spain, D. A.  
2023
- **For-Profit Status and Geographic Distribution of Trauma Centers in the US.** *JAMA surgery*  
Handley, T. J., Kang, A., Alawa, J., Arnow, K., Spain, D. A., Choi, J.  
2023
- **Maturing as an Impactful Academic Surgeon during Residency Research Time.** *Annals of surgery*  
Choi, J., Spain, D. A.  
2022
- **Explainable Machine Learning to Bring Database to the Bedside: Development and Validation of the TROUT (Trauma fRailty OUTcomes) Index, a Point-of-Care Tool to Prognosticate Outcomes after Traumatic Injury based on Frailty.** *Annals of surgery*  
Choi, J., Anderson, T., Tennakoon, L., Spain, D. A., Forrester, J. D.  
2022
- **Access to American College of Surgeons Committee on Trauma-Verified Trauma Centers in the US, 2013-2019.** *JAMA*  
Choi, J., Karr, S., Jain, A., Harris, T. C., Chavez, J. C., Spain, D. A.  
2022; 328 (4): 391-393
- **Access to American College of Surgeons Committee on Trauma-Verified Trauma Centers in the US, 2013-2019** *JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*  
Choi, J., Karr, S., Jain, A., Harris, T. C., Chavez, J. C., Spain, D. A.  
2022; 328 (4): 391-393
- **The Need to Routinely Convert Emergency Cricothyroidotomy to Tracheostomy: A Systematic Review and Meta-Analysis.** *Journal of the American College of Surgeons*  
Choi, J., Anderson, T. N., Sheira, D., Sousa, J., Borghi, J. A., Spain, D. A., Knowlton, L. M.  
2022; 234 (5): 947-952
- **Clinical Prediction Tools in Trauma: Where Do We Go From Here?** *JAMA network open*  
Choi, J., Forrester, J. D.  
2022; 5 (1): e2145867
- **The Weight of Surgical Knowledge: Navigating Information Overload.** *Annals of surgery*  
Choi, J., Stave, C., Spain, D. A.  
2021

- **Prospective study of long-term quality-of-life after rib fractures.** *Surgery*  
Choi, J., Khan, S., Sheira, D., Hakes, N. A., Aboukhater, L., Spain, D. A.  
1800
- **Citation Inaccuracies in Influential Surgical Journals.** *JAMA surgery*  
Choi, J., Gupta, A., Kaghazchi, A., Htwe, T. S., Baiocchi, M., Spain, D. A.  
2021
- **Practical Computer Vision Application to Compute Total Body Surface Area Burn: Reappraising a Fundamental Burn Injury Formula in the Modern Era.** *JAMA surgery*  
Choi, J., Patil, A., Vendrow, E., Touponse, G., Aboukhater, L., Forrester, J. D., Spain, D. A.  
2021
- **Rib Fracture Frailty Index: A Risk-Stratification Tool for Geriatric Patients with Multiple Rib Fractures.** *The journal of trauma and acute care surgery*  
Choi, J., Marafino, B. J., Vendrow, E. B., Tennakoon, L., Baiocchi, M., Spain, D. A., Forrester, J. D.  
2021
- **Nationwide Cost-Effectiveness Analysis of Surgical Stabilization of Rib Fractures by Flail Chest Status and Age Groups.** *The journal of trauma and acute care surgery*  
Choi, J., Mulaney, B., Laohavinij, W., Trimble, R., Tennakoon, L., Spain, D. A., Salomon, J. A., Goldhaber-Fiebert, J. D., Forrester, J. D.  
2020
- **Safety of Foregoing Operation for Small Bowel Obstruction in the Virgin Abdomen: Systematic Review and Meta-Analysis.** *Journal of the American College of Surgeons*  
Choi, J. n., Fisher, A. T., Mulaney, B. n., Anand, A. n., Carlos, G. n., Stave, C. D., Spain, D. A., Weiser, T. G.  
2020
- **Surgical Stabilization of Rib Fracture to Mitigate Pulmonary Complication and Mortality: A Systematic Review and Bayesian Meta-Analysis.** *Journal of the American College of Surgeons*  
Choi, J. n., Gomez, G. I., Kaghazchi, A. n., Borghi, J. A., Spain, D. A., Forrester, J. D.  
2020
- **Pain Scores in Geriatric vs Nongeriatric Patients With Rib Fractures.** *JAMA surgery*  
Choi, J. n., Khan, S. n., Zmary, K. n., Tennakoon, L. n., Spain, D. A.  
2020
- **Prospective Study of Short-Term Quality-of-Life After Traumatic Rib Fractures.** *The journal of trauma and acute care surgery*  
Choi, J. n., Khan, S. n., Hakes, N. A., Carlos, G. n., Seltzer, R. n., Jaramillo, J. D., Spain, D. A.  
2020
- **Thoracic and Lumbar Spine Injury: Evidence-Based Diagnosis, Management, and Outcomes.** *The American surgeon*  
Gomez, G. I., Li, G. Q., Valido, A. A., Stoner, A. J., Bromley-Dulfano, R. A., Sheira, D., Gonzalez, C. A., Khan, S. I., Choi, J., Zygourakis, C. C., Weiser, T. G.  
2023; 31348231216479
- **Clinical prediction tool pitfalls and considerations: Data and algorithms.** *Surgery*  
Choi, J., Marwaha, J. S.  
2023
- **An Open-Source Curriculum to Teach Practical Academic Research Skills.** *Annals of surgery open : perspectives of surgical history, education, and clinical approaches*  
Lee, J. J., Korndorffer, J. R., Knowlton, L. M., Choi, J.  
2023; 4 (3): e329
- **Guest editor's introduction to the series.** *Surgery*  
Choi, J.  
2023
- **Artificial Intelligence-enabled Decision Support in Surgery: State-of-the-art and Future Directions.** *Annals of surgery*  
Loftus, T. J., Altieri, M. S., Balch, J. A., Abbott, K. L., Choi, J., Marwaha, J. S., Hashimoto, D. A., Brat, G. A., Raftopoulos, Y., Evans, H. L., Jackson, G. P., Walsh, D. S., Tignanelli, et al

2023

- **FasterRib: A Deep Learning Algorithm to Automate Identification and Characterization of Rib Fractures on Chest Computed Tomography Scans.** *The journal of trauma and acute care surgery*  
Edamadaka, S., Brown, D. J., Swaroop, R., Kolodner, M., Spain, D. A., Forrester, J. D., Choi, J.  
2023
- **An Open-Source Curriculum to Teach Practical Academic Research Skills** *Annals of Surgery Open*  
Lee, J. J., Korndorffer, J. R., Knowlton, L. M., Choi, J.  
2023; 4 (3)
- **Appraising the Quality of Development and Reporting in Surgical Prediction Models.** *JAMA surgery*  
Marwaha, J. S., Chen, H. W., Habashy, K., Choi, J., Spain, D. A., Brat, G. A.  
2022
- **Evidence-based surgery for laparoscopic cholecystectomy.** *Surgery open science*  
Fisher, A. T., Bessoff, K. E., Khan, R. I., Touponse, G. C., Yu, M. M., Patil, A. A., Choi, J., Stave, C. D., Forrester, J. D.  
2022; 10: 116-134
- **Challenges in Closing the Gap between Evidence and Practice: International Survey of Institutional Surgical Stabilization of Rib Fractures Guidelines.** *The journal of trauma and acute care surgery*  
Choi, J., Badrinathan, A., Shine, R., Benz, C., Toia, A., Whitbeck, S., Kryskow, M., White, T., Kirsch, J.  
2022
- **DeepBackRib: Deep Learning to Understand Factors Associated with Readmissions after Rib Fractures.** *The journal of trauma and acute care surgery*  
Choi, J., Alawa, J., Tennakoon, L., Forrester, J. D.  
2022
- **Associations of Hearing Loss Severity and Hearing Aid Use With Hospitalization Among Older US Adults.** *JAMA otolaryngology-- head & neck surgery*  
Thai, A., Khan, S. I., Choi, J., Ma, Y., Megwalu, U. C.  
2022
- **Building a Trainee-led Research Community to Propel Academic Productivity in Health Services Research.** *Journal of surgical education*  
Choi, J., Tennakoon, L., Khan, S., Jaramillo, J. D., Rajasingh, C. M., Hakes, N. A., Forrester, J. D., Knowlton, L. M., Nassar, A. K., Weiser, T. G., Spain, D. A.  
2022
- **Surgical stabilization versus nonoperative treatment for flail and non-flail rib fracture patterns in patients with traumatic brain injury.** *European journal of trauma and emergency surgery : official publication of the European Trauma Society*  
Prins, J. T., Van Lieshout, E. M., Ali-Osman, F., Bauman, Z. M., Caragounis, E. C., Choi, J., Christie, D. B., Cole, P. A., DeVoe, W. B., Doben, A. R., Eriksson, E. A., Forrester, J. D., Fraser, et al  
2022
- **Contemporary management of obturator hernia.** *Trauma surgery & acute care open*  
Anderson, T., Bessoff, K. E., Spain, D., Choi, J.  
2022; 7 (1): e001011
- **Scalable Deep Learning Algorithm to Compute Percent Pulmonary Contusion among Patients with Rib Fractures.** *The journal of trauma and acute care surgery*  
Choi, J., Mavrommati, K., Li, N. Y., Patil, A., Chan, K., Hindin, D. I., Forrester, J. D.  
2022
- **Outcome-specific Injury Scores (OSIS): Development and Validation of Tailored Prediction Tools for Injured Older Adults**  
Choi, J., Tennakoon, L., Spain, D. A., Staudenmayer, K. L.  
ELSEVIER SCIENCE INC.2021: E74
- **Associations of Hearing Loss and Hearing Aid Use with Hospitalization in the Elderly**  
Thai, A., Khan, S. I., Choi, J., Megwalu, U. C.  
ELSEVIER SCIENCE INC.2021: S170-S171
- **Traumatic Injury and Death Among Law Enforcement Officers**  
Patil, A., Tennakoon, L., Choi, J., Hakes, N., Spain, D. A., Tung, J.

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 ELSEVIER SCIENCE INC.2021: E94

- **Scoping review of traumatic hemothorax: Evidence and knowledge gaps, from diagnosis to chest tube removal.** *Surgery*  
Choi, J., Villarreal, J., Andersen, W., Min, J. G., Touponse, G., Wong, C., Spain, D. A., Forrester, J. D.  
2021
- **Practical computer vision application to detect hip fractures on pelvic X-rays: a bi-institutional study.** *Trauma surgery & acute care open*  
Choi, J., Hui, J. Z., Spain, D., Su, Y. S., Cheng, C. T., Liao, C. H.  
2021; 6 (1): e000705
- **The impact of trauma systems on patient outcomes.** *Current problems in surgery*  
Choi, J., Carlos, G., Nassar, A. K., Knowlton, L. M., Spain, D. A.  
2021; 58 (1): 100840
- **Evidence-based surgery for laparoscopic appendectomy: A stepwise systematic review.** *Surgery open science*  
Bessoiff, K. E., Choi, J., Wolff, C. J., Kashikar, A., Carlos, G. M., Caddell, L., Khan, R. I., Stave, C. D., Spain, D. A., Forrester, J. D.  
2021; 6: 29-39
- **Intercostal Nerve Cryoablation during Surgical Stabilization of Rib Fractures.** *The journal of trauma and acute care surgery*  
Choi, J., Min, J. G., Jopling, J. K., Meshkin, S., Bessoiff, K. E., Forrester, J. D.  
2021
- **Efficacy of intercostal cryoneurolysis as an analgesic adjunct for chest wall pain after surgery or trauma: a systematic review** *Trauma Surgery & Acute Care Open*  
Cha, P. I., Min, J. G., Patil, A., Choi, J., Kothary, N. N., Forrester, J. D.  
2021: e000690
- **Systematic Review and Meta-Analysis of Hardware Failure in Surgical Stabilization of Rib Fractures: Who, What, When, Where, and Why?** *The Journal of surgical research*  
Choi, J., Kaghazchi, A., Sun, B., Woodward, A., Forrester, J. D.  
2021; 268: 190-198
- **Complication to consider: delayed traumatic hemothorax in older adults** *Trauma Surgery Acute Care Open*  
Choi, J., Anand, A., Sborov, K. D., Walton, W., Chow, L., Guillamondegui, O., Dennis, B. M., Spain, D., Staudenmayer, K.  
2021
- **Heterogeneity in managing rib fractures across non-trauma and level I, II, and III trauma centers.** *American journal of surgery*  
Choi, J. n., Kaghazchi, A. n., Dickerson, K. L., Tennakoon, L. n., Spain, D. A., Forrester, J. D.  
2021
- **Concomitant Sternal Fractures: Harbinger of Worse Pulmonary Complications and Mortality in Patients With Rib Fractures.** *The American surgeon*  
Choi, J. n., Mulaney, B. n., Sun, B. n., Trimble, R. n., Tennakoon, L. n., Spain, D. A., Forrester, J. D.  
2021: 3134821991978
- **Early National Landscape of Surgical Stabilization of Sternal Fractures.** *World journal of surgery*  
Choi, J. n., Khan, S. n., Syed, M. n., Tennakoon, L. n., Forrester, J. D.  
2021
- **Incidence and Management of Arterial Vascular Trauma in the US**  
Kashikar, A., Choi, J., Tennakoon, L., Spain, D., Arya, S.  
ELSEVIER SCIENCE INC.2020: E263–E264
- **Common, Severe, and Preventable: Agricultural Machinery Trauma in the US**  
Hakes, N. A., Jaramillo, J. D., Choi, J., Spain, D. A., Tennakoon, L., Forrester, J. D.  
ELSEVIER SCIENCE INC.2020: E231
- **Outcome after surgical stabilization of rib fractures versus nonoperative treatment in patients with multiple rib fractures and moderate to severe traumatic brain injury (CWIS-TBI).** *The journal of trauma and acute care surgery*  
Prins, J. T., Van Lieshout, E. M., Ali-Osman, F. n., Bauman, Z. M., Caragounis, E. C., Choi, J. n., Benjamin Christie, D. n., Cole, P. A., DeVoe, W. B., Doben, A. R., Eriksson, E. A., Forrester, J. D., Fraser, et al  
2020

- **Necessity of routine chest radiograph in blunt trauma resuscitation: time to evaluate dogma with evidence.** *The journal of trauma and acute care surgery*  
Choi, J. n., Forrester, J. D., Spain, D. A.  
2020
- **Pulmonary contusions in patients with rib fractures: The need to better classify a common injury.** *American journal of surgery*  
Choi, J. n., Tennakoon, L. n., You, J. G., Kaghazchi, A. n., Forrester, J. D., Spain, D. A.  
2020
- **Surgical Infection Society Guidelines for Antibiotic Use in Patients with Traumatic Facial Fractures.** *Surgical infections*  
Forrester, J. D., Wolff, C. J., Choi, J. n., Colling, K. P., Huston, J. M.  
2020
- **Creation and implementation of a novel clinical workflow based on the AAST uniform anatomic severity grading system for emergency general surgery conditions.** *Trauma surgery & acute care open*  
Bessoff, K. E., Choi, J. n., Bereknyei Merrell, S. n., Nassar, A. K., Spain, D. n., Knowlton, L. M.  
2020; 5 (1): e000552
- **Prospectively Assigned AAST Grade versus Modified Hinchey Class and Acute Diverticulitis Outcomes.** *The Journal of surgical research*  
Choi, J. n., Bessoff, K. n., Bromley-Dulfano, R. n., Li, Z. n., Gupta, A. n., Taylor, K. n., Wadhwa, H. n., Seltzer, R. n., Spain, D. A., Knowlton, L. M.  
2020
- **A Novel Approach to Deliver Therapeutic Extracellular Vesicles Directly into the Mouse Kidney Cells**  
Ullah, M., Liu, D. D., Rai, S., Razavi, M., Choi, J., Wang, J., Concepcion, W., Thakor, A. S.  
2020; 9 (4): 937
- **Concurrent large bowel obstruction secondary to idiopathic mesenteroaxial gastric volvulus.** *Trauma surgery & acute care open*  
Anand, A., Choi, J., Jaramillo, J. D., Lau, J.  
2020; 5 (1): e000582
- **The impact of trauma systems on patient outcomes** *Current Problems in Surgery*  
Choi, J., Carlos, G., Nassar, A. K., Knowlton, L. M., Spain, D. A.  
2020
- **Lessons from Epidemics, Pandemics, and Surgery.** *Journal of the American College of Surgeons*  
Hakes, N. A., Choi, J. n., Spain, D. A., Forrester, J. D.  
2020
- **National readmission rates after surgical stabilization of traumatic rib fractures** *The Journal of Cardiothoracic Trauma*  
Cha, P. I., Hakes, N. A., Choi, J., Tennakoon, L., Spain, D. A., Forrester, J. D.  
2020; 5 (1): 16-21
- **Intravenous lidocaine as a non-opioid adjunct analgesic for traumatic rib fractures.** *PloS one*  
Choi, J. n., Zamary, K. n., Barreto, N. B., Tennakoon, L. n., Davis, K. M., Trickey, A. W., Spain, D. A.  
2020; 15 (9): e0239896
- **Evidenced-Based Practice Among Trainees: A Survey on Facial Trauma Wound Management.** *Journal of surgical education*  
Choi, J. n., Traboulsi, A. A., Okland, T. S., Sadauskas, V. n., Perrault, D. n., Spain, D. A., Lorenz, H. P., Weiser, T. G.  
2020
- **Review of Facial Trauma Management.** *The journal of trauma and acute care surgery*  
Choi, J. n., Lorenz, H. P., Spain, D. A.  
2020
- **Altered Mental Status and Hypercalcemia with a Splenic Mass.** *The journal of trauma and acute care surgery*  
Khan, S., Choi, J., Patel, S. A., Spain, D. A.  
2019
- **Atraumatic acute forearm compartment syndrome due to systemic heparin.** *Trauma surgery & acute care open*  
Chavez, G. n., Choi, J. n., Fogel, N. n., Jaramillo, J. D., Murphy, M. n., Spain, D. n.  
2019; 4 (1): e000399

- **Meckel's Diverticulum Fistulization: Another Complication to Consider.** *Journal of gastrointestinal surgery : official journal of the Society for Surgery of the Alimentary Tract*  
Choi, J. n., Hawn, M. n.  
2019
- **LAPRA-TY for laparoscopic repair of traumatic diaphragmatic hernia without intracorporeal knot tying.** *Trauma surgery & acute care open*  
Choi, J. n., Pan, J. n., Forrester, J. D., Spain, D. n., Browder, T. D.  
2019; 4 (1): e000334
- **Perianal Extramammary Paget's Disease: More Than Meets the Eye.** *Digestive diseases and sciences*  
Choi, J. n., Zemek, A. n., Lee, G. K., Kin, C. n.  
2018
- **A Novel Approach for Therapeutic Delivery to the Rodent Pancreas Via Its Arterial Blood Supply.** *Pancreas*  
Choi, J. n., Wang, J. n., Ren, G. n., Thakor, A. S.  
2018; 47 (7): 910–15
- **Systems approach to uncover signaling networks in primary immunodeficiency diseases.** *journal of allergy and clinical immunology*  
Choi, J., Fernandez, R., Maecker, H. T., Butte, M. J.  
2017

## PRESENTATIONS

- Precision, High-throughput Identification of Immune Signaling Pathway Defects leading to Increased Infection Susceptibility - American Society of Transplantation-Cutting Edge of Transplantation 2015
- Systems Biology Approach to Analyze Signaling Defects and Identify Novel Immunodeficiencies - Clinical Immunology Society