




Robert Steffner

Clinical Associate Professor, Orthopaedic Surgery

 NIH Biosketch available Online

CLINICAL OFFICE (PRIMARY)

- **Orthopaedic Musculoskeletal Tumor Surgery**

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ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Dr. Steffner specializes in the evaluation, diagnosis, and treatment of bone and soft tissue tumors in pediatric and adult patients. This includes primary bone and soft tissue sarcomas, locally active conditions such as giant cell tumor, aneurysmal bone cyst, and chondroblastoma, as well as impending and pathologic fractures from metastatic carcinoma, multiple myeloma, and lymphoma. He works closely with the multidisciplinary sarcoma group at the Stanford Cancer Center to provide coordinated, highly specialized treatment strategies.

Research interests include circulating tumor DNA in bone and soft tissue sarcomas, local drug delivery, establishment of a national bone and soft tissue registry, and collaborative clinical studies on imaging and soft tissue management.

CLINICAL FOCUS

- Soft Tissue Sarcoma
- Bone Sarcoma
- Pediatric Sarcoma
- Orthopaedic Surgery

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Orthopaedic Surgery

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Certified, American Board of Orthopaedic Surgery (ABOS) (2015 - present)
- Fellow, American Academy of Orthopaedic Surgeons (AAOS) (2015 - present)
- Member, Children's Oncology Group (COG) (2015 - present)
- Faculty Member, AO Trauma (2013 - present)
- Member, Musculoskeletal Tumor Society (MSTS) (2013 - present)

PROFESSIONAL EDUCATION

- Board Certification: Orthopaedic Surgery, American Board of Orthopaedic Surgery (2015)
- Oncology Fellowship, University of Chicago, Chicago IL , Department of Orthopaedic Surgery (2013)
- Trauma Fellowship, University of California-Davis, Sacramento CA , Department of Orthopaedic Surgery (2012)
- Residency, University of Chicago, Chicago IL , Department of Orthopaedic Surgery (2011)
- Doctor of Medicine, Wayne State School of Medicine, Detroit MI , Medicine (2006)

LINKS

- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>

Research & Scholarship

CLINICAL TRIALS

- Phase I/IIa Open-Label Study of SQ3370 in Advanced Solid Tumors, Not Recruiting

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Oncology (Fellowship Program)

Publications

PUBLICATIONS

- **CBL Syndrome With Granular Cell Tumor and café au lait macules: Expansion of the Phenotype.** *American journal of medical genetics. Part A* Harrington, C. N., Kohl, E., Gilitwala, Z., Teng, J., Siegel, D. H., Charville, G. W., Steffner, R. J., Stevenson, D. A. 2026
- **Outcomes of oncovascular reconstruction in patients with extremity sarcomas.** *JVS-vascular insights* Zahiri, A., Fereydooni, A., Eshraghian, E., Ho, M., Mohler, D. G., Avedian, R. S., Steffner, R. J., Chandra, V., Lee, J. T., Harris, E. J., George, E. L. 2026; 4
- **Decoding the evolutionary landscape of soft tissue sarcomas: From multiregion origins to therapy-driven adaptation** Soudi, S., Silvia, N., Subramanian, A., Nouth, S., Ryu, F., Kaneko, T., New, C., Kenney, D., Avedian, R., Steffner, R., Mohler, D., Kalbasi, A., Van De Rijn, et al AMER ASSOC CANCER RESEARCH.2025: B18
- **Liposclerosing myxofibrous tumor: radiographic reporting frequency, pathologic correlation, and malignant transformation.** *Skeletal radiology* Zandee van Rilland, E. D., Riley, G. M., Garner, H. W., Edgar, M. A., Charville, G. W., Steffner, R. J., Boutin, R. D. 2025
- **Pseudomyogenic Hemangioendothelioma Treated with Zoledronic Acid: A Case Report.** *JBJS case connector* McGovern, A. G., Bui, N. Q., Charville, G. W., Guja, K. E., Steffner, R. J. 2025; 15 (4)
- **Prevention in non-oncologic intent sarcoma surgery.** *Surgical oncology* Wise, C. E., Le, C., Pham, N. S., New, C., Kenney, D. E., Avedian, R., Mohler, D., Steffner, R. 2025; 62: 102273
- **Whole genome-based circulating tumor DNA analysis as an ultrasensitive biomarker in pediatric sarcomas.** Johns, C., Subramanian, A., Soudi, S., Somani, A., Oladipo, E., Ryu, F., Kaneko, T., New, C., Kenney, D., Nouth, S., Avedian, R., Steffner, R., Mohler, et al LIPPINCOTT WILLIAMS & WILKINS.2025: 10053

- **Musculoskeletal Tumor Care Disparities Prior to Initiation of Treatment Among Newly Diagnosed Adult Patients.** *Cancers*
Li, L. J., Bui, N., Moding, E. J., Steffner, R., Mohler, D., Ganjoo, K., Pan, M.
2025; 17 (9)
- **Association of Histologic Subtype With Radiation Response and Survival Outcomes in Synovial Sarcoma.** *Advances in radiation oncology*
Matsui, J. K., Jackson, S., Fang, J., Mohler, D. G., Steffner, R. J., Avedian, R. S., Charville, G. W., Rijn, M. v., Million, L., Chin, A. L., Hiniker, S. M., Kalbasi, A., Moding, et al
2025; 10 (3): 101718
- **Evolutionary Pressures Shape Undifferentiated Pleomorphic Sarcoma Development and Radiotherapy Response.** *Cancer research*
Blomain, E., Soudi, S., Wang, Z., Somani, A., Subramanian, A., Nouth, S. C., Oladipo, E., New, C., Kenney, D. E., Nemat-Gorgani, N., Kindler, T., Avedian, R. S., Steffner, et al
2025
- **MRI of Soft-Tissue Tumors: What to Include in the Report.** *Radiographics : a review publication of the Radiological Society of North America, Inc*
Riley, G. M., Steffner, R., Kwong, S., Chin, A., Boutin, R. D.
2024; 44 (6): e230086
- **Sarcoma microenvironment cell states and ecosystems are associated with prognosis and predict response to immunotherapy.** *Nature cancer*
Subramanian, A., Nemat-Gorgani, N., Ellis-Caleo, T. J., van IJzendoorn, D. G., Sears, T. J., Somani, A., Luca, B. A., Zhou, M. Y., Bradic, M., Torres, I. A., Oladipo, E., New, C., Kenney, et al
2024
- **Patterns of local recurrence and risk of skin recurrence in soft tissue sarcomas after surgical resection.** *Practical radiation oncology*
Ewongwo, A., Oladipo, E. D., Hui, C., Avedian, R. S., Steffner, R. J., Mohler, D. G., Kalbasi, A., Chin, A. L., Million, L., Hiniker, S. M., Moding, E. J.
2023
- **OUTCOMES OF PEDIATRIC AND ADOLESCENT PATIENTS WITH METASTATIC SARCOMA TREATED WITH SURGICAL RESECTION OR STEREOTACTIC ABLATIVE RADIATION THERAPY**
Oh, J., Gutkin, P., Wang, Y., Donaldson, S., Steffner, R., Bruzoni, M., Avedian, R., Spunt, S., Pribnow, A., Hiniker, S.
ELSEVIER IRELAND LTD.2023: S98
- **Assessment of the Interval to Diagnosis in Pediatric Bone Sarcoma.** *Pediatric emergency care*
Kha, S. T., Sharma, J., Kenney, D., Daldrup-Link, H., Steffner, R.
2023
- **Combining Shelf Osteotomy With Proximal Femoral Reconstruction After Oncologic Resection** *TECHNIQUES IN ORTHOPAEDICS*
Zhou, J. Y., Lai, C., Pun, S. Y., Richey, A., Leshikar, H. B., Avedian, R., Steffner, R.
2023; 38 (2): 85-89
- **Outcomes of Pediatric and Adolescent Patients with Metastatic Sarcoma Treated with Surgical Resection or Stereotactic Ablative Radiation Therapy (SABR)**
Oh, J., Gutkin, P., Donaldson, S., Steffner, R., Bruzoni, M., Avedian, R., Spunt, S., Pribnow, A., Hiniker, S.
LIPPINCOTT WILLIAMS & WILKINS.2022: S42
- **Interactions in CSF1-driven Tenosynovial Giant Cell Tumors.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
van IJzendoorn, D. G., Matusiak, M., Charville, G. W., Spierenburg, G., Varma, S., Colburg, D. R., van de Sande, M. A., van Langevelde, K., Mohler, D. G., Ganjoo, K. N., Bui, N. Q., Avedian, R. S., Bovee, et al
2022
- **Management of Patients with Newly Diagnosed Desmoid Tumors in a First-Line Setting.** *Cancers*
Testa, S., Bui, N. Q., Charville, G. W., Avedian, R. S., Steffner, R., Ghanouni, P., Mohler, D. G., Ganjoo, K. N.
2022; 14 (16)
- **Health Literacy and Patient Participation in Shared Decision-Making in Orthopedic Surgery** *ORTHOPEDICS*
Mertz, K., Eppler, S., Shah, R., Yao, J., Steffner, R., Safran, M., Hu, S., Chou, L., Amanatullah, D. F., Kamal, R. N.
2022; 45 (4): 227-232

- **Local control outcomes using stereotactic body radiotherapy or surgical resection for metastatic sarcoma.** *International journal of radiation oncology, biology, physics*
Gutkin, P. M., von Eyben, R., Chin, A., Donaldson, S. S., Oh, J., Jiang, A., Ganjoo, K. N., Avedian, R. S., Bruzoni, M., Steffner, R. J., Moding, E. J., Hiniker, S. M.
2022
- **MR Imaging of Benign Soft Tissue Tumors: Highlights for the Practicing Radiologist.** *Radiologic clinics of North America*
Riley, G. M., Kwong, S., Steffner, R., Boutin, R. D.
2022; 60 (2): 263-281
- **Metastatic Pattern of Truncal and Extremity Leiomyosarcoma: Retrospective Analysis of Predictors, Outcomes, and Detection.** *Journal of personalized medicine*
Tigchelaar, S. S., Frey, C., Sivaraj, D., Segovia, N. A., Mohler, D. G., Steffner, R. J., Avedian, R. S.
2022; 12 (3)
- **Phase 1 trial of SQ3370 in solid tumors.**
Guminski, A., Wang, D., Bui, N., Bhadri, V., De Silva, M., Steffner, R., Yee, N. A., Srinivasan, S., Oneto, J., Saville, M., Subbiah, V.
AMER ASSOC CANCER RESEARCH.2021
- **Ferumoxytol magnetic resonance imaging detects joint and pleural infiltration of bone sarcomas in pediatric and young adult patients.** *Pediatric radiology*
Theruvath, A. J., Rashidi, A., Nyalakonda, R. R., Avedian, R. S., Steffner, R. J., Spunt, S. L., Daldrup-Link, H. E.
2021
- **National Metrics Improved Timeliness of Antibiotic Administration for Open Extremity Fractures.** *Journal of orthopaedic trauma*
Shieh, A. K., Lucas, J. F., Shelton, T. J., Wright, A. J., Steffner, R. J., Wolinsky, P. R.
2020
- **SQ3370-001 IS A MULTI-CENTER OPEN-LABEL PHASE I DOSE-ESCALATION STUDY TO TEST A NOVEL INTRATUMORAL AND SYSTEMIC APPROACH TO TREAT ADVANCED SOLID TUMORS**
Bhadri, V., Bui, N., Guminski, A., Oneto, J., Murthy, R., Sankhala, K., Saville, M., Srinivasan, S., Steffner, R., Subbiah, V., Wang, D., Yee, N.
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- **The Importance of Concordance Between Patients and Their Subspecialists** *ORTHOPEDICS*
Shah, R. F., Mertz, K., Gil, J. A., Eppler, S. L., Amanatullah, D., Yao, J., Chou, L., Steffner, R., Safran, M., Hu, S. S., Kamal, R. N.
2020; 43 (5): 315-+
- **Soft tissue pathology for the radiologist: a tumor board primer with 2020 WHO classification update.** *Skeletal radiology*
Kuhn, K. J., Cloutier, J. M., Boutin, R. D., Steffner, R., Riley, G.
2020
- **Anti-rotation pins for the compress implant do not increase risk of mechanical failure or impair osseointegration** *ANNALS OF JOINT*
Campbell, S. T., Steffner, R. J., Finlay, A., Mohler, D. G., Avedian, R. S.
2019; 4 (8)
- **Motor-sparing high-thoracic erector spinae plane block for proximal humerus surgery and total shoulder arthroplasty surgery: clinical evidence for differential peripheral nerve block?** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*
Ma, W., Sun, L., Ngai, L., Costouros, J. G., Steffner, R., Boublik, J., Tsui, B. C.
2019
- **The Association of Financial Distress With Disability in Orthopaedic Surgery.** *The Journal of the American Academy of Orthopaedic Surgeons*
Mertz, K., Eppler, S. L., Thomas, K., Alokozai, A., Yao, J., Amanatullah, D. F., Chou, L., Wood, K. B., Safran, M., Steffner, R., Gardner, M., Kamal, R. N.
2019; 27 (11): e522–e528
- **Ferumoxytol Does Not Impact Standardized Uptake Values on PET/MR Scans.** *Molecular imaging and biology : MIB : the official publication of the Academy of Molecular Imaging*
Muehe, A. M., Yermeni, K. n., Theruvath, A. J., Thakor, A. S., Pribnow, A. n., Avedian, R. n., Steffner, R. n., Rosenberg, J. n., Hawk, K. E., Daldrup-Link, H. E.
2019

- **Outcomes for pediatric patients with osteosarcoma treated with palliative radiotherapy.** *Pediatric blood & cancer*
Chen, E. L., Yoo, C. H., Gutkin, P. M., Merriott, D. J., Avedian, R. S., Steffner, R. J., Spunt, S. L., Pribnow, A. K., Million, L. n., Donaldson, S. S., Hiniker, S. M.
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- **Patient Perceptions Correlate Weakly With Observed Patient Involvement in Decision-making in Orthopaedic Surgery** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Mertz, K., Eppler, S., Yao, J., Amanatullah, D. F., Chou, L., Wood, K. B., Safran, M., Steffner, R., Gardner, M., Kamal, R.
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- **Staging of Bone and Soft-tissue Sarcomas** *JOURNAL OF THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS*
Steffner, R. J., Jang, E. S.
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- **Patient Perceptions Correlate Weakly With Observed Patient Involvement in Decision-making in Orthopaedic Surgery.** *Clinical orthopaedics and related research*
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- **Staging of Bone and Soft-tissue Sarcomas.** *The Journal of the American Academy of Orthopaedic Surgeons*
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2018
- **LYMPHOMA OF BONE** *JBJS REVIEWS*
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- **Emerging Concepts in Upper Extremity Trauma Humeral Shaft Fractures** *ORTHOPEDIC CLINICS OF NORTH AMERICA*
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- **Case series of sural island flaps used for soft-tissue defects of the distal-third lower extremity** *JOURNAL OF WOUND CARE*
Steffner, R. J., Spiguel, A., Ranieri, J., Suk, M., Yoo, B. J.
2012; 21 (10): 469-475
- **Humeral shaft fractures.** *Current reviews in musculoskeletal medicine*
Spiguel, A. R., Steffner, R. J.
2012; 5 (3): 177-183
- **Surgical Intervention of Nonvertebral Osseous Metastasis** *CANCER CONTROL*
Attar, S., Steffner, R. J., Avedian, R., Hussain, W. M.
2012; 19 (2): 113-121
- **Factors associated with recurrence of primary aneurysmal bone cysts: is argon beam coagulation an effective adjuvant treatment?** *journal of bone and joint surgery. American volume*
Steffner, R. J., Liao, C., Stacy, G., Atanda, A., Attar, S., Avedian, R., Peabody, T. D.
2011; 93 (21): e1221-9
- **Aneurysmal Bone Cyst**
Steffner, R. J., Avedian, R., Peabody, T.
American Academy of Orthopaedic Surgeons. Orthopaedic Knowledge Online (OKO)..
2009
- **Ascorbic acid recycling by cultured beta cells: Effects of increased glucose metabolism** *FREE RADICAL BIOLOGY AND MEDICINE*
Steffner, R. J., Wu, L., Powers, A., May, A. M.
2004; 37 (10): 1612-1621

- **Oxidative stress is a mediator of glucose toxicity in insulin-secreting pancreatic islet cell lines** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Wu, L., Nicholson, W., Knobel, S. M., Steffner, R. J., May, J. M., Piston, D. W., Powers, A. C.
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