

Stanford



Gloria Hwang, MD

Clinical Professor, Radiology

CLINICAL OFFICES

- **Interventional Radiology**

300 Pasteur Dr Rm H3630

MC 5642

Stanford, CA 94305

Tel (650) 725-5202

Fax (650) 725-0533

ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

Jessica Rodgers - Administrative Assistant

Email jess2019@stanford.edu

Tel (650) 736-7623

Bio

CLINICAL FOCUS

- Cancer
- Radiology
- Interventional Radiology and Diagnostic Radiology

ACADEMIC APPOINTMENTS

- Clinical Professor, Radiology
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Associate Chair, Clinical Performance Improvement, Department of Radiology, (2019- present)
- Medical Informatics Director and Chair of Radiology IT Operations Committee, Department of Radiology, (2020- present)
- Associate Program Director, Department of Radiology, (2015- present)
- Director of Clinical Performance Improvement, Department of Radiology, (2018-2019)

HONORS AND AWARDS

- Magna Cum Laude, Harvard University (1996)
- Featured Abstract, SIR Annual Meeting (2001)
- Norman Blank Award for Excellence in Radiology, Stanford University (2001)
- Stanford University Medical Center Dept. of Surgery 90th Percentile Award, Stanford University (2002)
- RSNA/AUR/ARRS Introduction to Research Program Scholarship, RSNA/AUR/ARRS (2003)
- Molecular Biology for Imagers course scholarship, AUR (2005)
- Chief Resident, Dept. of Radiology, Stanford University (2004-2005)
- RSNA Roentgen Resident/Fellow Research Award, RSNA (2007)

PROFESSIONAL EDUCATION

- Board Certification: Interventional Radiology and Diagnostic Radiology, American Board of Radiology (2017)
- Fellowship: Stanford University Hospital (2008) CA
- Residency: Stanford University - Fellowship (2006) CA
- BA, Harvard College , Biochemical Sciences (1996)
- Medical Education: Stanford University School of Medicine (2001) CA
- Internship: Stanford Hospital and Clinics - Dept of Surgery (2002) CA
- Subspecialty Certificate, American Board of Radiology , Interventional Radiology (2010)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Interventional oncology, pancreatic interventions, image-guided gene therapy.

CLINICAL TRIALS

- Filter Initial & Long Term Evaluation After Placement and Retrieval Registry, Recruiting
- Pulmonary Embolism Response to Fragmentation, Embolectomy, & Catheter Thrombolysis: PERFECT, Recruiting
- A Phase 2b Study of Modified Vaccinia Virus to Treat Patients Advanced Liver Cancer Who Failed Sorafenib, Not Recruiting
- Acute Venous Thrombosis: Thrombus Removal With Adjunctive Catheter-Directed Thrombolysis, Not Recruiting
- ExAblate (MRgFUS) Treatment of Metastatic Bone Tumors for the Palliation of Pain, Not Recruiting
- HepaSphere/QuadrSphere Microspheres for Delivery of Doxorubicin for the Treatment of Hepatocellular Cancer, Not Recruiting
- Impact of C-arm CT in Decreased Renal Function Undergoing TACE for Tx of Hepato-Cellular Carcinoma, Not Recruiting
- Impact of C-arm CT in Patients With HCC Undergoing TACE: Optimal Imaging Guidance, Not Recruiting
- The GORE Viabahn Endoprosthesis for the Treatment of Venous Occlusions and Stenoses, Not Recruiting

Publications

PUBLICATIONS

- **Opportunities for Excellence in Interventional Radiology Training: A Qualitative Study.** *Journal of the American College of Radiology : JACR*
Oladini, L., Rezaee, M., Thukral, S., Raiter, S., Odetoyinbo, K., Keller, E., Hwang, G.
2022
- **Safety and Feasibility of Cryoablation during Immunotherapy in Patients with Metastatic Soft Tissue Sarcoma.** *Journal of vascular and interventional radiology : JVIR*
Doshi, A., Zhou, M., Bui, N., Wang, D. S., Ganjoo, K., Hwang, G. L.
2021
- **Long-Term Remission with Ipilimumab/Nivolumab in Two Patients with Different Soft Tissue Sarcoma Subtypes and No PD-L1 Expression.** *Case reports in oncology*
Zhou, M., Bui, N., Lohman, M., van de Rjin, M., Hwang, G., Ganjoo, K.
2021; 14 (1): 459–65
- **Recognizing and Avoiding the Most Common Mistakes in Quality Improvement.** *Journal of the American College of Radiology : JACR*
Larson, D. B., Willis, M. H., Hwang, G. L.
2020
- **Critical Results in Radiology: Defined by Clinical Judgment or by a List?** *Journal of the American College of Radiology : JACR*
Kuhn, K., Larson, D. B., 2020 Radiology Improvement Summit Critical Results Workgroup, Becker, C., Bierhals, A., Broder, J., City, R., Cooke, E., Cordova, D., Curci, N. E., Davenport, M. S., Dinan, D., Duncan, J. R., et al

2020

- **Spontaneous Bleeding from Multiple Intercostal Arteries in a Patient with Coarctation of the Aorta.** *The Annals of thoracic surgery*
Wightman, S. C., Wang, Y. n., Rohr, A. M., Greene, C. L., Hwang, G. L., Watkins, A. C., Lui, N. S.
2020
- **Needs of Referring Providers by Practice Type: Results of a Survey at an Academic Medical Center.** *AJR. American journal of roentgenology*
Larson, D. B., Hwang, G. L.
2020
- **Untapped Resources: Attaining Equitable Representation for Women in IR** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Perez, M. G., Fassiotto, M., Altamirano, J., Hwang, G. L., Maldonado, Y., Josephs, S., Sze, D. Y., Kothary, N.
2019; 30 (4): 579–83
- **Untapped Resources: Attaining Equitable Representation for Women in IR.** *Journal of vascular and interventional radiology : JVIR*
Perez, M. G., Fassiotto, M., Altamirano, J., Hwang, G. L., Maldonado, Y., Josephs, S., Sze, D. Y., Kothary, N.
2019
- **Technical Feasibility and Clinical Effectiveness of Transjugular Intrahepatic Portosystemic Shunt Creation in Pediatric and Adolescent Patients.** *Journal of vascular and interventional radiology : JVIR*
Bertino, F., Hawkins, C. M., Shivaram, G., Gill, A. E., Lungren, M. P., Reposar, A., Sze, D. Y., Hwang, G. L., Koo, K., Monroe, E.
2019; 30 (2): 178
- **Reduction of Muscle Contractions during Irreversible Electroporation Therapy Using High-Frequency Bursts of Alternating Polarity Pulses: A Laboratory Investigation in an ExVivo Swine Model.** *Journal of vascular and interventional radiology : JVIR*
Sano, M. B., Fan, R. E., Cheng, K., Saenz, Y., Sonn, G. A., Hwang, G. L., Xing, L.
2018; 29 (6): 893
- **Highly Articulated Robotic Needle Achieves Distributed Ablation of Liver Tissue.** *IEEE robotics and automation letters*
Gerboni, G., Greer, J. D., Laeseke, P. F., Hwang, G. L., Okamura, A. M.
2017; 2 (3): 1367-1374
- **The Role of Cone-Beam CT in Transcatheter Arterial Chemoembolization for Hepatocellular Carcinoma: A Systematic Review and Meta-analysis.** *Journal of vascular and interventional radiology*
Pung, L., Ahmad, M., Mueller, K., Rosenberg, J., Stave, C., Hwang, G. L., Shah, R., Kothary, N.
2017; 28 (3): 334-341
- **The Role of Dual-Phase Cone-Beam CT in Predicting Short-Term Response after Transarterial Chemoembolization for Hepatocellular Carcinoma.** *Journal of vascular and interventional radiology*
Müller, K., Datta, S., Gehrisch, S., Ahmad, M., Mohammed, M. A., Rosenberg, J., Hwang, G. L., Louie, J. D., Sze, D. Y., Kothary, N.
2017; 28 (2): 238-245
- **Survival in Cirrhotic Patients with High MELD Scores: The TIPping Point** *DIGESTIVE DISEASES AND SCIENCES*
Hwang, G. L., Sze, D. Y.
2017; 62 (2): 296–98
- **Production of Spherical Ablations Using Nonthermal Irreversible Electroporation: A Laboratory Investigation Using a Single Electrode and Grounding Pad.** *Journal of vascular and interventional radiology*
Sano, M. B., Fan, R. E., Hwang, G. L., Sonn, G. A., Xing, L.
2016; 27 (9): 1432-1440 e3
- **Methods for Improving the Curvature of Steerable Needles in Biological Tissue** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Adebar, T. K., Greer, J. D., Laeseke, P. F., Hwang, G. L., Okamura, A. M.
2016; 63 (6): 1167-1177
- **Superselective Chemoembolization of HCC: Comparison of Short-term Safety and Efficacy between Drug-eluting LC Beads, QuadraSpheres, and Conventional Ethiodized Oil Emulsion.** *Radiology*
Duan, F., Wang, E. Q., Lam, M. G., Abdelmaksoud, M. H., Louie, J. D., Hwang, G. L., Kothary, N., Kuo, W. T., Hofmann, L. V., Sze, D. Y.
2016; 278 (2): 612-621
- **Methyl Methacrylate Mimicking a Retained Guide Wire.** *Journal of vascular and interventional radiology : JVIR*

- Moradzadeh, N. n., Hwang, G. n., Nair, V. n., Guo, H. H.
2016; 27 (12): 1906
- **Percutaneous Cryoablation for Successful Treatment of a Persistent Urine Leak after Robotic-Assisted Partial Nephrectomy.** *Journal of vascular and interventional radiology*
Ward, T. J., Ahmed, O., Chung, B. I., Sze, D. Y., Hwang, G. L.
2015; 26 (12): 1867-1870
 - **Periprocedural Patient Care** *RADIOGRAPHICS*
Kohi, M. P., Fidelman, N., Behr, S., Taylor, A. G., Kolli, K., Conrad, M., Hwang, G., Weinstein, S.
2015; 35 (6): 1766-1778
 - **Emergent Salvage Direct Intrahepatic Portocaval Shunt Procedure for Acute Variceal Hemorrhage** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Ward, T. J., Techasith, T., Louie, J. D., Hwang, G. L., Hofmann, L. V., Sze, D. Y.
2015; 26 (6): 829-834
 - **Development of a High-Throughput Molecular Imaging-Based Orthotopic Hepatocellular Carcinoma Model.** *Cureus*
Hwang, G. L., van den Bosch, M. A., Kim, Y. I., Katzenberg, R., Willmann, J. K., Paulmurugan, R., Gambhir, S. S., Hofmann, L.
2015; 7 (6)
 - **Classification of Hypervascular Liver Lesions Based on Hepatic Artery and Portal Vein Blood Supply Coefficients Calculated from Triphasic CT Scans** *JOURNAL OF DIGITAL IMAGING*
Boas, F. E., Kamaya, A., Do, B., Desser, T. S., Beaulieu, C. F., Vasanawala, S. S., Hwang, G. L., Sze, D. Y.
2015; 28 (2): 213-223
 - **Optimal imaging surveillance schedules after liver-directed therapy for hepatocellular carcinoma.** *Journal of vascular and interventional radiology*
Boas, F. E., Do, B., Louie, J. D., Kothary, N., Hwang, G. L., Kuo, W. T., Hovsepian, D. M., Kantrowitz, M., Sze, D. Y.
2015; 26 (1): 69-73
 - **Immune correlates of talactoferrin alfa in biopsied tumor of relapsed/refractory metastatic non-small cell lung cancer patients.** *Immunopharmacology and immunotoxicology*
Riess, J. W., Bhattacharya, N., Blenman, K. R., Neal, J. W., Hwang, G., Pultar, P., San-Pedro Salcedo, M., Engleman, E., Lee, P. P., Malik, R., Wakelee, H. A.
2014; 36 (2): 182-186
 - **Real-Time 3D Curved Needle Segmentation Using Combined B-Mode and Power Doppler Ultrasound** *17th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*
Greer, J. D., Adebar, T. K., Hwang, G. L., Okamura, A. M.
SPRINGER-VERLAG BERLIN.2014: 381-388
 - **Applying a Structured Innovation Process to Interventional Radiology: A Single-Center Experience** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Sista, A. K., Hwang, G. L., Hovsepian, D. M., Sze, D. Y., Kuo, W. T., Kothary, N., Louie, J. D., Yamada, K., Hong, R., Dhanani, R., Brinton, T. J., Krummel, T. M., Makower, et al
2012; 23 (4): 488-494
 - **Yttrium-90 Radioembolization of Renal Cell Carcinoma Metastatic to the Liver** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Abdelmaksoud, M. H., Louie, J. D., Hwang, G. L., Kothary, N., Minor, D. R., Sze, D. Y.
2012; 23 (3): 323-330
 - **Transarterial Chemoembolization for Hepatocellular Carcinomas in Watershed Segments: Utility of C-Arm Computed Tomography for Treatment Planning** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Abdelmaksoud, M. H., Louie, J. D., Hwang, G. L., Sze, D. Y., Hofmann, L. V., Kothary, N.
2012; 23 (2): 281-283
 - **Percutaneous Cholecystostomy for Acute Cholecystitis: Ten-Year Experience** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Joseph, T., Unver, K., Hwang, G. L., Rosenberg, J., Sze, D. Y., Hashimi, S., Kothary, N., Louie, J. D., Kuo, W. T., Hofmann, L. V., Hovsepian, D. M.
2012; 23 (1): 83-88
 - **Imaging Guidance with C-arm CT: Prospective Evaluation of Its Impact on Patient Radiation Exposure during Transhepatic Arterial Chemoembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*

- Kothary, N., Abdelmaksoud, M. H., Tognolini, A., Fahrig, R., Rosenberg, J., Hovsepian, D. M., Ganguly, A., Louie, J. D., Kuo, W. T., Hwang, G. L., Holzer, A., Sze, D. Y., Hofmann, et al
2011; 22 (11): 1535-1544
- **In Vitro Design and Characterization of the Nonviral Gene Delivery Vector Iopamidol, Protamine, Ethiodized Oil Reagent** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Higgins, L. J., Hwang, G. L., Rosenberg, J., Katzenberg, R. H., Kothary, N., Sze, D. Y., Hofmann, L. V.
2011; 22 (10): 1457-1463
 - **Embolization of Parasitized Extrahepatic Arteries to Reestablish Intrahepatic Arterial Supply to Tumors before Yttrium-90 Radioembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Abdelmaksoud, M. H., Louie, J. D., Kothary, N., Hwang, G. L., Kuo, W. T., Hofmann, L. V., Hovsepian, D. M., Sze, D. Y.
2011; 22 (10): 1355-1362
 - **Consolidation of Hepatic Arterial Inflow by Embolization of Variant Hepatic Arteries in Preparation for Yttrium-90 Radioembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Abdelmaksoud, M. H., Louie, J. D., Kothary, N., Hwang, G. L., Kuo, W. T., Hofmann, L. V., Hovsepian, D. M., Sze, D. Y.
2011; 22 (10): 1364-1372
 - **Photothermal Ablation with the Excimer Laser Sheath Technique for Embedded Inferior Vena Cava Filter Removal: Initial Results from a Prospective Study** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Kuo, W. T., Odegaard, J. I., Louie, J. D., Sze, D. Y., Unver, K., Kothary, N., Rosenberg, J. K., Hovsepian, D. M., Hwang, G. L., Hofmann, L. V.
2011; 22 (6): 813-823
 - **Intrahepatic Collateral Supply to the Previously Embolized Right Gastric Artery: A Potential Pitfall for Nontarget Radioembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Meer, A. B., Louie, J. D., Abdelmaksoud, M. H., Kothary, N., Hovsepian, D. M., Hofmann, L. V., Kuo, W. T., Hwang, G. L., Sze, D. Y.
2011; 22 (4): 575-577
 - **Common Iliac Vein Stenosis and Risk of Symptomatic Pulmonary Embolism: An Inverse Correlation** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Chan, K. T., Popat, R. A., Sze, D. Y., Kuo, W. T., Kothary, N., Louie, J. D., Hovsepian, D. M., Hwang, G. L., Hofmann, L. V.
2011; 22 (2): 133-141
 - **C-arm Computed Tomography for Hepatic Interventions: A Practical Guide** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Tognolini, A., Louie, J., Hwang, G., Hofmann, L., Sze, D., Kothary, N.
2010; 21 (12): 1817-1823
 - **Renewing Focus on Resident Education: Increased Responsibility and Ownership in Interventional Radiology Rotations Improves the Educational Experience** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Kothary, N., Ghatan, C. E., Hwang, G. L., Kuo, W. T., Louie, J. D., Sze, D. Y., Hovsepian, D. M., Desser, T. S., Hofmann, L. V.
2010; 21 (11): 1697-1702
 - **Development of New Hepaticocentric Collateral Pathways after Hepatic Arterial Skeletonization in Preparation for Yttrium-90 Radioembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Abdelmaksoud, M. H., Hwang, G. L., Louie, J. D., Kothary, N., Hofmann, L. V., Kuo, W. T., Hovsepian, D. M., Sze, D. Y.
2010; 21 (9): 1385-1395
 - **Computed Tomography-Guided Percutaneous Needle Biopsy of Indeterminate Pulmonary Pathology: Efficacy of Obtaining a Diagnostic Sample in Immunocompetent and Immunocompromised Patients** *CLINICAL LUNG CANCER*
Kothary, N., Bartos, J. A., Hwang, G. L., Dua, R., Kuo, W. T., Hofmann, L. V.
2010; 11 (4): 251-256
 - **Utility of C-arm CT in Patients with Hepatocellular Carcinoma undergoing Transhepatic Arterial Chemoembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Tognolini, A., Louie, J. D., Hwang, G. L., Hofmann, L. V., Sze, D. Y., Kothary, N.
2010; 21 (3): 339-347
 - **High-risk Retrieval of Adherent and Chronically Implanted IVC Filters: Techniques for Removal and Management of Thrombotic Complications** *34th Annual Conference of the Society-of-Interventional-Radiology*
Kuo, W. T., Tong, R. T., Hwang, G. L., Louie, J. D., Lebowitz, E. A., Sze, D. Y., Hofmann, L. V.

ELSEVIER SCIENCE INC.2009: 1548-56

- **Incorporating Cone-beam CT into the Treatment Planning for Yttrium-90 Radioembolization** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Louie, J. D., Kothary, N., Kuo, W. T., Hwang, G. L., Hofmann, L. V., Goris, M. L., Iagaru, A. H., Sze, D. Y.
2009; 20 (5): 606-613
- **Bidirectionally Adjustable TIPS Reduction by Parallel Stent and Stent-Graft Deployment** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Sze, D. Y., Hwang, G. L., Kao, J. S., Frisoli, J. K., Kee, S. T., Razavi, M. K., Ahmed, A.
2008; 19 (11): 1653-1658
- **Role of image-guided vascular intervention in therapeutic angiogenesis translational research.** *Expert review of cardiovascular therapy*
Hwang, G. L., Patel, T. H., Hofmann, L. V.
2007; 5 (5): 903-915
- **Recurrent lymphoma of the lung - Computed tomography appearance** *JOURNAL OF COMPUTER ASSISTED TOMOGRAPHY*
Hwang, G. L., Leung, A. N., Zinck, S. E., Berry, G. J.
2005; 29 (2): 228-230
- **Abdominal myomectomy versus uterine fibroid embolization in the treatment of symptomatic uterine leiomyomas** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Razavi, M. K., Hwang, G., Jahed, A., Modanloo, S., Chen, B.
2003; 180 (6): 1571-1575
- **Chronic expanding hematoma of the thorax** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Hwang, G. L., Moffatt, S. D., Mitchell, J. D., Leung, A. N.
2003; 180 (4): 1182-1183
- **Angiographic classification of ovarian artery-to-uterine artery anastomoses: Initial observations in uterine fibroid embolization** *RADIOLOGY*
Razavi, M. K., Wolanske, K. A., Hwang, G. L., Sze, D. Y., Kee, S. T., Dake, M. D.
2002; 224 (3): 707-712