



Zara M. Patel, MD

Professor of Otolaryngology - Head & Neck Surgery (OHNS) and, by courtesy, of Neurosurgery

Otolaryngology (Head and Neck Surgery)

CLINICAL OFFICE (PRIMARY)

- **Stanford Dept of Otolaryngology, Head and Neck Surgery**

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Bio

BIO

Dr. Zara M. Patel is Director of Endoscopic Skull Base Surgery, Director of the Stanford Initiative to Cure Smell and Taste Loss, Director of the Neurosinology - Advanced Sinus and Skull Base Surgery Fellowship, and a Professor of Otolaryngology and, by courtesy, of Neurosurgery at Stanford. She was born and raised in St. Louis, completed her MD at the Oregon Health and Sciences University in Portland, Oregon and completed her residency training in otolaryngology at Mount Sinai Medical Center in New York, NY. After pursuing fellowship training in rhinology and endoscopic skull base surgery at Stanford University, she joined the Emory University faculty in Atlanta in 2011. After four years, she was recruited back to the West coast to rejoin the department here at Stanford University in 2015.

Dr. Patel is an expert in advanced endoscopic sinus and skull base surgery. She treats patients with a wide variety of rhinologic complaints, including chronic sinus infection or inflammation, sinus disease that has failed medical therapy, sinus disease that has failed prior surgical therapy, cerebrospinal fluid leaks, benign and malignant sinus and skull base tumors, as well as olfactory disorders.

She has served as Chair of the Education Committee and Member of the Board of Directors for the American Rhinologic Society, Chair of the Rhinology and Allergy Education Committee for the American Academy of Otolaryngology - Head and Neck Surgery, and has developed a multitude of educational materials for both physicians and patients to help them better understand rhinologic disorders. She is passionate about educating patients to allow them to make the best decisions about their own care, leading to better outcomes.

Dr. Patel has published widely in topics such as avoiding complications in endoscopic sinus surgery, chronic rhinosinusitis in the immunosuppressed patient population, new techniques for endoscopic skull base surgery, artificial intelligence and olfactory dysfunction. She continues to perform research in these areas, and is currently collaborating with neuroscientists and engineers to develop technology that she hopes will eventually help cure patients with smell loss, and potentially even help those with neurodegenerative disorders, such as Alzheimer's and Parkinson's disease.

CLINICAL FOCUS

- Endoscopic Sinus and Skull Base Surgery
- Chronic Rhinosinusitis
- Benign and Malignant Sinus and Skull Base Tumors
- Olfaction and Olfactory Disorders
- Cerebrospinal Fluid Leaks
- Sinusitis
- Nasal Obstruction
- Epiphora, Orbital Tumors, Orbital decompression
- Pituitary Surgery
- Rhinology
- Otolaryngology

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Otolaryngology (Head and Neck Surgery)
- Professor - University Medical Line (By courtesy), Neurosurgery
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Director of the Stanford Initiative to Cure Smell and Taste Loss, Department of Otolaryngology - Head and Neck Surgery, (2025- present)
- Director of Endoscopic Skull Base Surgery, Department of Otolaryngology - Head and Neck Surgery, (2017- present)
- Director Neurorhinology - Advanced Sinus and Skull Base Surgery Fellowship, Department of Otolaryngology-Head and Neck Surgery, Stanford University, (2015- present)

HONORS AND AWARDS

- Award for Distinguished Service, American Academy of Otolaryngology - Head and Neck Surgery (2024)
- Presidential Citation for Service, American Rhinologic Society (2018, 2021, 2022)
- Fellow, American Rhinologic Society (2016)
- Woodruff Teaching Award, Emory University (2014)
- Mount Sinai Resident Teaching Award, Mount Sinai Medical School (2010)
- First Place, New York City Otolaryngology Resident Research Day (2008)
- Leadership Grant, American Academy of Otolaryngology (2007, 2008)
- Campbell Scholarship, Oregon Health and Sciences University (2004)
- Inductee, National Medical Honors Society, Alpha Omega Alpha (2004)
- OHSU Rose Award, Oregon Health and Sciences University (2003)
- Miller Memorial Fund Scholarship, University of Missouri (2001-2003)
- Hughes Academic Achievement Award, State of Missouri (2000)
- Inductee, National Honor Society, Phi Bet Kappa (2000)
- Inductee, National Honor Society, Phi Eta Sigma (1998)
- Bright Flight Scholarship, University of Missouri (1997-2001)

- National Merit Finalist, National Merit Scholarship Corporation (1997)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair, Rhinology and Allergy Education Committee, American Academy of Otolaryngology and Head and Neck Surgery (2021 - 2024)
- Member, Board of Directors, American Rhinologic Society (2018 - 2021)
- Member, Scientific Program Committee, American Academy of Otolaryngology (2016 - 2021)
- Chair, Education Committee, American Rhinologic Society (2014 - 2017)
- Member, Adult Sinusitis Guideline Committee, American Academy of Otolaryngology (2014 - 2015)
- Member, Rhinology and Allergy Education Committee, American Academy of Otolaryngology (2013 - 2021)
- Member, Program Committee, American Rhinologic Society (2012 - 2016)
- Member, Legislative Representatives Committee, Board of Governors, American Academy of Otolaryngology (2012 - 2016)

PROFESSIONAL EDUCATION

- Residency: Icahn School of Medicine at Mount Sinai (2010) NY
- Internship: Icahn School of Medicine at Mount Sinai (2006) NY
- Board Certification: Otolaryngology, American Board of Otolaryngology (2011)
- Fellowship: Stanford School of Medicine (2011) CA
- Medical Education: Oregon Health Science University (2005) OR

PATENTS

- Zara Patel. "United States Patent 20240024664 Methods of Treatment and Devices for Repair of Inflammatory, Neurotransmitter, Endocrine or Metabolic Issues", Leland Stanford Junior University, Jan 25, 2024

LINKS

- Stanford Initiative to Cure Smell and Taste Loss: <https://med.stanford.edu/smell.html>
- Donate to support Dr. Patel's Research (Please specify Dr. Zara Patel on form): <https://med.stanford.edu/ohns/contact/gift.html>
- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>
- Google Scholar: <https://scholar.google.com/citations?user=CqVolWoAAAAJ>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Smell and Taste Disorders: The only US based surgeon-scientist who has run multiple randomized controlled trials innovating new and effective treatment options for smell loss. Current line of research is in endoscopic electrical recording and stimulation of the olfactory system.

Artificial Intelligence: Investigating the ability for automated machine learning to distinguish benign from malignant tumors in the sinonasal region.

Chronic Sinusitis and Endoscopic Sinus Surgery: Investigating an array of medical and surgical treatment options, evaluating the treatment paradigm for patients with immunocompromise.

Endoscopic Skull Base Surgery: Innovating new methodologies for skull base reconstruction and surgical techniques that can improve patient outcomes.

CLINICAL TRIALS

- Randomized Clinical Trial of Intranasal Injection of Platelet-Rich Plasma for Treatment of Parosmia, Recruiting

- Physician/Patient Choice of Either High-Dose Recombinant Interferon Alfa-2B or Ipilimumab, Versus Pembrolizumab in Treating Patients With Stage III-IV High Risk Melanoma That Has Been Removed by Surgery, Not Recruiting

Publications

PUBLICATIONS

- **Regenerating smell in neurodegenerative disease -translating theory into therapy.** *European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery*
Di Stadio, A., Brenner, M. J., De Luca, P., D'Ascanio, L., Patel, Z. M.
2026
- **Optimizing Radiography Utilization: Multidisciplinary Expert Consensus Recommendations Endorsed by the Society of Academic Bone Radiologists, Society of Skeletal Radiology, American Society of Emergency Radiology, Orthopaedic Trauma Association, American Academy of Emergency Medicine, and American Rhinologic Society.** *Radiology*
Zandee van Rilland, E. D., Fayad, L. M., Link, T. M., Davis, K. W., Wu, J. S., Brown, I. P., Chang, E. Y., Chow, L. C., Desai, S. C., Fritz, J., Gatz, J. D., Garner, H. W., Gorbachova, et al
2026; 319 (2): e252309
- **Minimal Clinically Important Difference of the Sinonasal Outcome Test in Sinonasal Malignancy.** *The Annals of otology, rhinology, and laryngology*
Maoz, S. L., Lee, M., Fischer, J. L., Choby, G., Hwang, P. H., Wang, E. W., Kuan, E. C., Adappa, N. D., Geltzeiler, M., Getz, A. E., Humphreys, I. M., Le, C. H., Pinheiro-Neto, et al
2026: 34894261428393
- **Determining the Minimal Clinically Important Difference of the 40-Item Smell Identification Test in People With Cystic Fibrosis** *INTERNATIONAL FORUM OF ALLERGY & RHINOLOGY*
Oh, E., Miller, J. E., Lee, M. J., Zemke, A., Baraghoshi, D., Strand, M. J., Alt, J. A., Bodner, T. E., Chang, M., Chowdhury, N. I., Eshaghian, P. H., Getz, A. E., Goralski, et al
2026
- **Artificial Intelligence-Based Quantification of Indocyanine Green Fluorescence for Standardized Perfusion Assessment in Endoscopic Skull Base Surgery** *JOURNAL OF NEUROLOGICAL SURGERY PART B-SKULL BASE*
Sethi, S., Daum, R., Grimm, D., Yong, M., Hosseinzadeh, F., Lee, C. K., Fernandez-Miranda, J. C., Nayak, J. V., Patel, Z. M., Hwang, P. H., Chang, M. T.
2026
- **Added Sinonasal Morbidity of Transpterygoid Approach versus Transsphenoidal Approach: A Case-Controlled Analysis.** *Journal of neurological surgery. Part B, Skull base*
Saroya, J., Huang, A. E., Hoosinzadeh, F., Lee, C. K., Fernandez-Miranda, J., Hwang, P. H., Patel, Z. M., Nayak, J. V., Chang, M. T.
2026; 87 (1): 43-49
- **Outcomes for Sinonasal Undifferentiated Carcinoma (SNUC): An International Multi-Center Retrospective Cohort Study.** *Cancers*
Liu, J., Takahashi, Y., Rehman, U., Turri-Zanoni, M., Mattavelli, D., Counsell, N., Ferrari, M., Rampinelli, V., Vermi, W., Lombardi, D., Saade, R., Park, K. W., Emanuel, et al
2026; 18 (3)
- **The Future of Treating Smell Loss**
Patel, Z. M.
OXFORD UNIV PRESS.2026
- **Predictive Value of Ipratropium Responsiveness on Posterior Nasal Nerve Neurectomy Outcomes in Chronic Rhinitis.** *Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery*
Maddineni, S., Hwang, P. H., Ayoub, N. F., Patel, Z. M., Nayak, J. V., Chang, M. T.
2025
- **Artificial Intelligence for Endoscopic Surveillance Post-Treatment for Nasopharyngeal Carcinoma: Detection of Recurrence and Osteoradionecrosis.** *International forum of allergy & rhinology*
Levi, L., Huynh, J. D., Wang, Y., Fieux, M., Manavi, M. S., Renteria, A., Sethi, S. K., Ayoub, N., Patel, Z., Nayak, J. V., Hwang, P., Chang, M. T.
2025

- **Distinguishing Suspected Invasive Fungal Sinusitis From Its Mimics: A Clinicopathologic Analysis of Histopathology-Negative Cases.** *International forum of allergy & rhinology*
Idler, B. M., Renteria, A., Liu, D. T., Rubio-Jimenez, I., Levi, L., Nayak, J. V., Patel, Z. M., Chang, M. T., Rahman, M., Hwang, P. H., Ayoub, N. F.
2025
- **Using Indocyanine Green Fluorescence Angiography to Evaluate the Impact of Surgical and Patient Factors on Posterior Septal Artery Perfusion in Endoscopic Skull Base Surgery.** *Journal of neurological surgery. Part B, Skull base*
Daum, R., Grimm, D., Yong, M., Hosseinzadeh, F., Lee, C. K., Fernandez-Miranda, J. C., Nayak, J. V., Patel, Z. M., Hwang, P. H., Chang, M. T.
2025; 86 (6): e2-e7
- **Proton Beam vs Intensity-Modulated Radiotherapy in Olfactory Neuroblastoma.** *JAMA otolaryngology-- head & neck surgery*
Tang, A., Adida, S., Donohue, J., Olson, B., Krippaehne, E., Roozdar, P., Goetschel, K., Gago, G., Almeida, J. P., Champagne, P. O., Fernandez-Miranda, J. C., Gardner, P., Hwang, et al
2025
- **Does Debridement of Intracranial Disease in Acute Invasive Fungal Sinusitis Improve Survival?** *JOURNAL OF NEUROLOGICAL SURGERY PART B-SKULL BASE*
Huang, A. E., Lee, C. K., Nayak, J. V., Hwang, P. H., Patel, Z. M., Fernandez-Miranda, J. C., Chang, M. T.
2025
- **Utilizing a publicly accessible automated machine learning platform to enable diagnosis before tumor surgery.** *Communications medicine*
Hosseinzadeh, F., Liu, G., Tsai, E., Mahmoudi, A., Yang, A., Kim, D., Fieux, M., Levi, L., Abdul-Hadi, S., Adappa, N. D., Alt, J. A., Altartoor, K. A., Bany, et al
2025; 5 (1): 419
- **Topical Anesthesia and Olfactory Capability: A Pilot Study.** *Laryngoscope investigative otolaryngology*
Fieux, M., Wang, E., Liu, D. T., Patel, Z. M.
2025; 10 (5): e70250
- **Expanded Endoscopic Endonasal Approach for Resection of Abducens Nerve Schwannoma Within the Cavernous Sinus and Posterior Fossa: 2-Dimensional Operative Video.** *Operative neurosurgery (Hagerstown, Md.)*
Asmaro, K., Vigo, V., Kim, L. H., Nernekli, K., Nunez, M. A., Patel, Z. M., Fernandez-Miranda, J. C.
2025
- **Functionality of Pituitary Tumors Impacts Sinonasal Quality of Life Before and After Endoscopic Surgery.** *The Laryngoscope*
Wongworawut, Y., Hwang, P. H., Nayak, J. V., Dodd, R., Fernandez-Miranda, J. C., Patel, Z. M.
2025
- **Multi-scaled transcriptomics of chronically inflamed nasal epithelium reveals immune-epithelial dynamics and tissue remodeling in nasal polyp formation.** *Immunity*
Liao, G., Nakayama, T., Zhu, B., Lee, I. T., Yeung, J., Yeo, Y. Y., Chang, Y., Wang, C., Liao, S. C., Nkosi, D., Renteria, A., Bravo, D. T., Overdevest, et al
2025
- **Is There Utility in Testing Pathologic Specimen for HPV in Sinonasal Inverted Papilloma?** *The Laryngoscope*
Callander, J. K., Patel, Z. M.
2025
- **Role of somatostatin receptor 2 (SSTR2) in pituitary adenomas.** *Clinical and translational medicine*
Power, Y., Liu, J., Rehman, U., Kjerimi, A., Scharfetter, V., Counsell, N., Starup-Hansen, J., Newall, N., Lund, V. J., Mohyeldin, A., Fernandez-Miranda, J. C., Lavezo, J., Patel, et al
2025; 15 (8): e70435
- **Olfactory implants: international opinion paper on emerging technologies and clinical applications** *RHINOLOGY*
Whitcroft, K. L., Hernandez, A., Andrews, P., Altundag, A., Benkhatar, H., Bensafi, M., Boex, C., Calegari, F., Coelho, D. H., Costanzo, R. M., Druet, V., Esposito, W., Fornos, et al
2025; 63: 1-38
- **Comparative Outcomes of Gross Total Resection vs. Subtotal Resection Plus Radiotherapy for Preventing Craniopharyngioma Recurrence: A Meta-Analysis of the Endoscopic Endonasal Approach.** *Cancers*
Bobeff, E. J., Szymd, B., Mlynarski, W., Jouanneau, E., Apra, C., Shen, M., Patel, Z. M., Jaskolski, D. J., Schwartz, T. H.

2025; 17 (15)

- **Patency of the Cavernous Sinus After Medial Wall Resection: An Observational Study** *JOURNAL OF NEUROLOGICAL SURGERY PART B-SKULL BASE*
Renteria, A. E., Fieux, M., Castro, B., Levi, L., Hung, L., Azevedo, A., Lee, C. K., Chang, M. T., Hwang, P. H., Nayak, J., Fischbein, N., Fernandez-Miranda, J., Patel, et al
2025
- **Comparative analysis of AI-generated study guides in otolaryngology education.** *American journal of otolaryngology*
Patel, E. A., Herrmann, P. T., Fleischer, L., Filip, P., Joe, S., Kshirsagar, R. S., Kuan, E. C., Papagiannopoulos, P., Patel, Z. M., Rangarajan, S., Batra, P. S., Tajudeen, B. A.
2025; 46 (5): 104693
- **June 4: International Skull Base Surgery Day.** *Journal of neurological surgery. Part B, Skull base*
Gudis, D. A., Bleier, B. S., Eloy, J. A., Evans, J. J., Fernandez-Miranda, J. C., Gardner, P. A., Geltzeiler, M., Grayson, J. W., Harvey, R. J., Illing, E. A., Kennedy, D. W., Klatt-Cromwell, C., Kuan, et al
2025; 86 (3): 243-244
- **Paxlovid Is Associated With Lower Rates of Long COVID-19 Smell and Taste Disorders.** *International forum of allergy & rhinology*
Wang, E., Patel, Z. M.
2025: e23612
- **The extra cost of biologics as first-line treatment in uncontrolled chronic rhinosinusitis with nasal polyps with no previous sinus surgery is overwhelming: a budget impact analysis.** *Rhinology*
Fieux, M., Margier, J., Bartier, S., Chang, M., Carsuzaa, F., Hwang, P. H., Patel, Z. M., Tringali, S., Favier, V., Savary, T.
2025
- **Office-based Sinus Surgery.** *Otolaryngologic clinics of North America*
Fieux, M., Patel, Z. M.
2025
- **Abridging the 22-Item Sino-Nasal Outcome Test (SNOT-22) in People With Cystic Fibrosis: Limiting Survey Burden.** *International forum of allergy & rhinology*
Chen, H., Fischer, J. L., Tibbe, T. D., Sedaghat, A. R., Han, E. J., Mace, J. C., Alt, J. A., Bodner, T. E., Chowdhury, N. I., Gao, Y. A., Hwang, P. H., Khanwalkar, A., Kimple, et al
2025: e23591
- **Expert Strategies: Skull Base Reconstruction-Global Perspectives, Insights, and Algorithms through a MixedMethods Approach.** *International forum of allergy & rhinology*
Kuan, E. C., Talati, V., Patel, J. A., Nguyen, T. V., Abiri, A., Pang, J. C., Goshtasbi, K., Liu, L., Craig, J. R., Papagiannopoulos, P., Phillips, K. M., Tajudeen, B. A., Adappa, et al
2025: e23596
- **Scoping review of deep learning research illuminates artificial intelligence chasm in otolaryngology-head and neck surgery.** *NPJ digital medicine*
Liu, G. S., Fereydooni, S., Lee, M. C., Polkampally, S., Huynh, J., Kuchibhotla, S., Shah, M. M., Ayoub, N. F., Capasso, R., Chang, M. T., Doyle, P. C., Holsinger, F. C., Patel, et al
2025; 8 (1): 265
- **The Development and Validation of the Smell-Qx Questionnaire, Based on a Systematic Review of the Literature and the COMET Initiative on the Development of Core Outcome Sets for Clinical Trials in Olfactory Disorders.** *International forum of allergy & rhinology*
Lechner, M., Fjaeldstad, A., Rehman, U., Liu, J., Boniface, D., Boardman, J., Boak, D., Altundag, A., Frasnelli, J., Gane, S., Holbrook, E., Hsieh, J., Huart, et al
2025: e23604
- **Olfaction, Eating Preference, and Quality of Life in Cystic Fibrosis Chronic Rhinosinusitis.** *The Laryngoscope*
Liu, C. M., Fischer, J. L., Lee, M. J., Mace, J. C., Kimple, A. J., Markarian, K., Alt, J. A., Bodner, T. E., Chowdhury, N. I., Chung, S. Y., Eshaghian, P. H., Gao, Y. A., Getz, et al
2025
- **June 4: International Skull Base Surgery Day.** *International forum of allergy & rhinology*

- Gudis, D. A., Bleier, B. S., Eloy, J. A., Evans, J. J., Fernandez-Miranda, J. C., Gardner, P. A., Geltzeiler, M., Grayson, J. W., Harvey, R. J., Illing, E. A., Kennedy, D. W., Klatt-Cromwell, C., Kuan, et al
2025
- **Expert Consensus on Surgical Management of Primary Diffuse Type 2-Dominant Chronic Rhinosinusitis.** *International forum of allergy & rhinology*
Blauwblomme, M., Georgalas, C., Ahmed, S., Alobid, I., Battaglia, P., Castelnovo, P., Constantinidis, J., Dallan, I., Eeckels, A. S., Ferrari, M., Gevaert, P., Grayson, J., Harvey, et al
2025
 - **Smell Recovery After Platelet-Rich Plasma After Trauma-Induced Anosmia.** *JAMA otolaryngology-- head & neck surgery*
Wang, E., Patel, Z. M.
2025
 - **Ipsilateral Nasoseptal Flaps in a Transpterygoid Approach: Technical Pearls and Reconstruction Outcomes.** *Journal of neurological surgery. Part B, Skull base*
Chang, M. T., Grimm, D., Asmaro, K., Yong, M., Low, C., Lee, C. K., Nayak, J. V., Hwang, P. H., Fernandez-Miranda, J. C., Patel, Z. M.
2025; 86 (1): 76-81
 - **The Exhalation Delivery System with Fluticasone has Consistent Efficacy Across the Spectrum of Chronic Rhinosinusitis: Pooled Analysis of 4 Placebo-Controlled Trials**
White, D., Mahdavinia, M., Adappa, N., Chandra, R., Davis, G., Mahmoud, R., Messina, J., Palmer, J., Patel, Z., Peters, A., Schlosser, R., Sindwani, R., Soler, et al
MOSBY-ELSEVIER.2025: AB76
 - **Durable reconstitution of sinonasal epithelium by transplant of CFTR gene corrected airway stem cells.** *bioRxiv : the preprint server for biology*
Bravo, D. T., Vaidyanathan, S., Baker, J., Sinha, V., Tsai, E., Roozdar, P., Kong, W. W., Atkinson, P. J., Patel, Z. M., Hwang, P. H., Rao, V. K., Negrin, R. S., Wine, et al
2025
 - **Added Sinonasal Morbidity of Transpterygoid Approach versus Transsphenoidal Approach: A Case-Controlled Analysis** *JOURNAL OF NEUROLOGICAL SURGERY PART B-SKULL BASE*
Saroya, J., Huang, A. E., Hooseinzadeh, F., Lee, C. K., Fernandez-Miranda, J., Hwang, P. H., Patel, Z. M., Nayak, J. V., Chang, M. T.
2025
 - **Unilateral Versus Bilateral Endoscopic Resection of Olfactory Neuroblastoma: Pooled Analysis From Prospective and Retrospective Multicenter Data.** *International forum of allergy & rhinology*
Abiri, A., Nguyen, T. V., Chen, H., Krippaehne, E., Lerner, D. K., Rahman, A. S., Roozdar, P., Rosvall, B. R., Sabbaj, M., Workman, A. D., Wu, S., Adappa, N. D., Beswick, et al
2025
 - **Machine learning of endoscopy images to identify, classify, and segment sinonasal masses.** *International forum of allergy & rhinology*
Levi, L., Ye, K., Fieux, M., Renteria, A., Lin, S., Xing, L., Ayoub, N. F., Patel, Z. M., Nayak, J. V., Hwang, P. H., Chang, M. T.
2025
 - **Comparing Efficacy of Steroid Irrigation + Steroid-eluting Sinus Stent Versus Steroid Irrigation Alone for Maintaining Frontal Sinus Patency After Sinus Surgery: A Randomized Controlled Trial.** *International forum of allergy & rhinology*
Fieux, M., Noel, J., Roozdar, P., Neves, C. A., Yan, C. H., Tyler, M., Rathor, A., Chang, M. T., Nayak, J. V., Hwang, P. H., Patel, Z. M.
2025
 - **Utilization of ChatGPT for Rhinology Patient Education: Limitations in a Surgical Sub-Specialty.** *OTO open*
Huang, A. E., Chang, M. T., Khanwalkar, A., Yan, C. H., Phillips, K. M., Yong, M. J., Nayak, J. V., Hwang, P. H., Patel, Z. M.
2025; 9 (1): e70065
 - **Correlation of the Sinonasal Outcome Test-22 With the University of Washington Quality of Life in Assessing Quality of Life in Sinonasal Malignancy Utilizing a Multicenter Prospective Observational Cohort Registry.** *International forum of allergy & rhinology*
Fleseriu, C. M., Wang, E. W., Beswick, D. M., Maoz, S. L., Hwang, P. H., Kuan, E. C., Adappa, N. D., Geltzeiler, M., Abuzeid, W. M., Pinheiro-Neto, C. D., Getz, A. E., Humphries, I. M., Le, et al
2025
 - **Long-term Outcomes of PRP Injections for Post-viral Olfactory Loss: A Prospective Cohort Study.** *International forum of allergy & rhinology*

- Fieux, M., Castro, B. R., Jang, S. S., Yan, C. H., Patel, Z. M.
2024
- **Evaluating the quality and readability of ChatGPT-generated patient-facing medical information in rhinology.** *European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery*
Fazilat, A. Z., Brenac, C., Kawamoto-Duran, D., Berry, C. E., Alyono, J., Chang, M. T., Liu, D. T., Patel, Z. M., Tringali, S., Wan, D. C., Fieux, M.
2024
 - **Posterior nasal nerve surgical neurectomy versus ablation for chronic rhinitis.** *American journal of otolaryngology*
Maddineni, S., Hwang, P. H., Patel, Z. M., Nayak, J. V., Chang, M. T.
2024; 46 (1): 104553
 - **Pathologic dural invasion is associated with regional recurrence in olfactory neuroblastoma: A multi-institutional study.** *International forum of allergy & rhinology*
Tang, A., Taori, S., Fung, N., Almeida, J. P., Champagne, P. O., Fernandez-Miranda, J. C., Gardner, P., Hwang, P. H., Nayak, J. V., Patel, C., Patel, Z. M., Celda, M. P., Pinheiro-Neto, et al
2024
 - **Using Indocyanine Green Fluorescence Angiography to Evaluate the Impact of Surgical and Patient Factors on Posterior Septal Artery Perfusion in Endoscopic Skull Base Surgery** *JOURNAL OF NEUROLOGICAL SURGERY PART B-SKULL BASE*
Daum, R., Grimm, D., Yong, M., Hosseinzadeh, F., Lee, C. K., Fernandez-Miranda, J. C., Nayak, J., Patel, Z. M., Hwang, P. H., Chang, M. T.
2024
 - **Reduced Sense of Smell in Patients with Severe Chronic Rhinosinusitis and its Implications for Diagnosis and Management: A Narrative Review.** *Advances in therapy*
Soler, Z. M., Nash, S., Lane, A. P., Patel, Z. M., Lee, S. E., Fokkens, W. J., Corbett, M., Jacob-Nara, J. A., Sacks, H.
2024
 - **Association Between Smell Loss, Disease Burden, and Dupilumab Efficacy in Chronic Rhinosinusitis with Nasal Polyps.** *American journal of rhinology & allergy*
Soler, Z. M., Patel, Z. M., Mullol, J., Mattos, J., Nash, S., Xia, C., Wang, Z., Borsos, K., Corbett, M., Jacob-Nara, J. A., Sacks, H., Rowe, P., Deniz, et al
2024: 19458924241274501
 - **Comparative analysis of traditional machine learning and automated machine learning: advancing inverted papilloma versus associated squamous cell carcinoma diagnosis.** *International forum of allergy & rhinology*
Hosseinzadeh, F., Mohammadi, S. S., Palmer, J. N., Kohanski, M. A., Adappa, N. D., Chang, M. T., Hwang, P. H., Nayak, J. V., Patel, Z. M.
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