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Dr. Yang specializes in health economics and outcomes research (HEOR). She has extensive experience in developing HEOR strategies and evaluating the clinical and economic impacts of a broad range of diseases and treatments. Dr. Yang has conducted and directed numerous studies in a variety of therapeutic areas, including autoimmune diseases, infectious diseases, diabetes, blood disorders, oncology, women's health, and central nervous system diseases. Her work has included systematic literature reviews, gap analyses, economic modeling, and evaluations of treatment efficacy, health care resource use, direct and indirect costs, and patient-reported outcomes. Dr. Yang has led evidence submissions to health technology assessment agencies in the UK, France, Germany, Canada, Australia, and Japan. Her work has been published in many peer-reviewed journals and featured at various conferences.

## EDUCATION

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| 2008 | Ph.D., biology, University of Illinois at Urbana-Champaign   |
| 2008 | M.S., statistics, University of Illinois at Urbana-Champaign |
| 2002 | B.S., biochemistry, Nankai University, Tianjin, China        |

## PROFESSIONAL EXPERIENCE

- 2009–Present Analysis Group, Inc.  
*Vice President (2017–Present)*  
*Manager (2013–2016)*  
*Associate (2011–2012)*  
*Senior Analyst (2009–2010)*

## SELECTED PUBLICATIONS (PEER-REVIEWED JOURNALS)

- Li J, Walker DR, Biesbroek G, Kristy RM, **Yang H**, Gao E, Koenigsberg S, Spalding JR, Kitt TM. Factors that impact a patient's experience when undergoing single-photon emission computed tomography myocardial perfusion imaging (SPECT-MPI) in the US: A survey of patients, imaging center staff, and physicians. *J Nucl Cardiol*. 2019 08:1-12.
- Tzellos T, **Yang H**, Mu F, Calimlim B, Signorovitch J. Impact of hidradenitis suppurativa on work loss, indirect costs and income. *Br J Dermatol*. 2019 08; 181(1):147-154.
- Levy BP, Signorovitch JE, **Yang H**, Patterson-Lomba O, Xiang CQ, Parisi M. Effectiveness of first-line treatments in metastatic squamous non-small-cell lung cancer. *Curr Oncol (Ontario)*. 2019 06; 26(3):e300-e308.

- Schultz NM, Penson DF, Wilson SD, Song Y, **Yang H**, Ramaswamy K, Lowentritt B. Health Care Resource Utilization and Costs Associated with Corticosteroid Use in Patients with Castration-Resistant Prostate Cancer: An Administrative Claims Analysis. *J Manag Care Spec Pharm.* 2019 06;1-10.
- Harrington M, Whalley D, Twiss J, Rushton R, Martin S, Huynh L, **Yang H**. Insights into the natural history of metachromatic leukodystrophy from interviews with caregivers. *Orphanet J Rare Dis.* 2019 04; 14(1):89.
- Griffin JD, **Yang H**, Song Y, Kinrich D, Shah MV, Bui CN. Treatment patterns and healthcare resource utilization in patients with FLT3-mutated and wild-type acute myeloid leukemia: A medical chart study. *Eur J Haemat.* 2019 04; 102(4):341-350.
- Kim S, Signorovitch JE, **Yang H**, Patterson-Lomba O, Xiang CQ, Ung B, Parisi M, Marshall JL. Comparative Effectiveness of nab-Paclitaxel Plus Gemcitabine vs FOLFIRINOX in Metastatic Pancreatic Cancer: A Retrospective Nationwide Chart Review in the United States. *Adv Ther.* 2018 10; 35(10):1564-1577.
- Schultz NM, Shore ND, Chowdhury S, Klotz LH, Concepcion RS, Penson DF, Karsh LI, **Yang H**, Brown BA, Barlev A, Flanders SC. Correction to: Number-needed-to-treat analysis of clinical progression in patients with metastatic castration-resistant prostate cancer in the STRIVE and TERRAIN trials. *BMC Urol.* 2018 10;18(1):84.
- Schultz NM, Flanders SC, Wilson S, Brown BA, Song Y, **Yang H**, Lechpammer S, Kassabian V. Treatment Duration, Healthcare Resource Utilization, and Costs Among Chemotherapy-Naive Patients with Metastatic Castration-Resistant Prostate Cancer Treated with Enzalutamide or Abiraterone Acetate: A Retrospective Claims Analysis. *Adv Ther.* 2018 10; 35(10):1639-1655.
- Jiang R, Law E, Zhou Z, **Yang H**, Wu EQ, Seifeldin R. Clinical Trajectories, Healthcare Resource Use, and Costs of Diabetic Nephropathy Among Patients with Type 2 Diabetes: A Latent Class Analysis. *Diabetes Ther.* 2018 06; 9(3):1021-1036.
- Tzellos T, **Yang H**, Mu F, Calimlim B, Signorovitch J. Impact of Hidradenitis Suppurativa on Work Loss, Indirect Costs and Income. *Br J Dermatol.* 2018 Aug 18:147-154.
- Schultz NM, Shore ND, Chowdhury S, Klotz LH, Concepcion RS, Penson DF, Karsh LI, **Yang H**, Brown BA, Barlev A, Flanders SC. Number-needed-to-treat analysis of clinical progression in patients with metastatic castration-resistant prostate cancer in the STRIVE and TERRAIN trials. *BMC Urol.* 2018 Sep 6;18(1):77.
- Jiang R, Law E, Zhou Z, **Yang H**, Wu EQ, Seifeldin R. Clinical Trajectories, Healthcare Resource Use, and Costs of Diabetic Nephropathy Among Patients with Type 2 Diabetes: A Latent Class Analysis. *Diabetes Ther.* 2018 Jun;9(3):1021-1036.
- Ayyagari R, Neary M, Li S, Rokito A, **Yang H**, Xie J, Benson AB 3rd. Comparing the Cost of Treatment with Octreotide Long-Acting Release versus Lanreotide in Patients with Metastatic Gastrointestinal Neuroendocrine Tumors. *Am Health Drug Benefits.* 2017 Nov; 10(8):408-415.
- **Yang H**, Duchesneau E, Foster R, Guerin A, Ma E, Thomas NP. Cost-effectiveness analysis of ocrelizumab versus subcutaneous interferon beta-1a for the treatment of relapsing multiple sclerosis. *J Med Econ.* 2017 Jul 31:1-10.

- Surrey ES, Soliman AM, **Yang H**, Du EX, Su B. Treatment Patterns, Complications, and Health Care Utilization Among Endometriosis Patients Undergoing a Laparoscopy or a Hysterectomy: A Retrospective Claims Analysis. *Adv Ther.* 2017 Nov; 34(11):2436-2451.
- Soliman AM, Du EX, **Yang H**, Wu EQ, Haley JC. Retreatment Rates Among Endometriosis Patients Undergoing Hysterectomy or Laparoscopy. *J Womens Health (Larchmt).* 2017 Jun;26(6):644-654.
- Li J, Houle CR, Spalding JR, **Yang H**, Xiang CQ, Kitt TM, Kristy RM, Wu EQ. Attributes of nuclear imaging centers impacting physician referrals for single-photon emission computed tomography myocardial perfusion imaging tests. *J Med Econ.* 2017 Apr 13:1-9.
- Wolf D, Skup M, **Yang H**, Fang AP, Kageleiry A, Chao J, Mittal M, Lebwohl M. Clinical Outcomes Associated with Switching or Discontinuation from Anti-TNF Inhibitors for Nonmedical Reasons. *Clin Ther.* 2017 Apr; 39(4):849-862.e6.
- Zhou Z, Chaudhari P, **Yang H**, Fang AP, Zhao J, Law EH, Wu EQ, Jiang R, Seifeldin R. Healthcare Resource Use, Costs, and Disease Progression Associated with Diabetic Nephropathy in Adults with Type 2 Diabetes: A Retrospective Observational Study. *Diabetes Ther.* 2017 Mar 30.
- Ostrosky-Zeichner L, Harrington R, Azie N, **Yang H**, Li N, Zhao J, Koo V, Wu EQ. A Risk Score for Fluconazole Failure among Patients with Candidemia. *Antimicrob Agents Chemother.* 2017 Apr 24; 61(5). pii: e02091-16.
- Harrington R, Lee E, **Yang H**, Wei J, Messali A, Azie N, Wu EQ, Spalding J. Cost-Effectiveness Analysis of Isavuconazole vs. Voriconazole as First-Line Treatment for Invasive Aspergillosis. *Adv Ther.* 2017 Jan;34(1):207-220.
- Kontoyiannis DP, **Yang H**, Song J, Kelkar SS, Yang X, Azie N, Harrington R, Fan A, Lee E, Spalding JR. Prevalence, clinical and economic burden of mucormycosis-related hospitalizations in the United States: a retrospective study. *BMC Infect Dis.* 2016 Dec 1;16(1):730.
- Massoudi M, Balk M, **Yang H**, Bui CN, Pandya BJ, Guo J, Song Y, Wu EQ, Brown B, Barlev A, Flanders S. Number needed to treat and associated incremental costs of treatment with enzalutamide versus abiraterone acetate plus prednisone in chemotherapy-naïve patients with metastatic castration-resistant prostate cancer. *J Med Econ.* 2017 Feb;20(2):121-128.
- Andes D, Azie N, **Yang H**, Harrington R, Kelley C, Tan RD, Wu EQ, Franks B, Kristy R, Lee E, Khandelwal N, Spalding J. Drug-Drug Interaction Associated with Mold-Active Triazoles among Hospitalized Patients. *Antimicrob Agents Chemother.* 2016 May 23;60(6):3398-406.
- Soliman AM, **Yang H**, Du EX, Kelley C, Winkel C. The direct and indirect costs associated with endometriosis: a systematic literature review. *Hum Reprod.* 2016 Apr;31(4):712-22.
- Setyawan J, **Yang H**, Cheng D, Cai X, Signorovitch JE, Xie J, Erder MH. Developing a risk score to guide individualized treatment selection in attention/deficit hyperactivity disorder. *Value Health.* 2015 Sep;18(6):824-31.
- Bonthapally V, **Yang H**, Ayyagari R, Tan RD, Cai S, Wu E, Gautam A, Chi A, Huebner D. Brentuximab vedotin compared with other therapies in relapsed/refractory Hodgkin lymphoma post ASCT: median overall survival meta-analysis. *Curr Med Res Opin.* 2015 Jul;31(7):1377-89.
- Bonthapally V, Wu E, Macalalad A, **Yang H**, Shonukan O, Liu Y, Chi A, Huebner D. Brentuximab vedotin in relapsed/refractory Hodgkin lymphoma post-autologous transplant: meta-analysis versus historical data. *Curr Med Res Opin.* 2015 May;31(5):993-1001.

- Soliman AM, **Yang H**, Du EX, Kelkar SS, Winkel C. The direct and indirect costs of uterine fibroid tumors: a systematic review of the literature between 2000 and 2013. *Am J Obstet Gynecol*. 2015 Aug;213(2):141-60.
- Macalalad AR, McAuliffe M, **Yang H**, Kageleiry A, Zhong Y, Wu EQ, Shonukan O, Bonthapally V. The epidemiology and targeted therapies for relapsed and refractory CD30+ lymphomas. *Curr Med Res Opin*. 2015 Mar;31(3):537-45.
- Fuldeore M, **Yang H**, Du EX, Soliman AM, Wu EQ, Winkel C. Healthcare utilization and costs in women diagnosed with endometriosis pre- and post-diagnosis: a longitudinal analysis of claims databases. *Fertil Steril*. 2015 Jan;103(1):163-71.
- Lachaine J, De G, Sikirica V, van Stralen J, Hodgkins P, **Yang H**, Heroux J, Ben Amor L. Treatment patterns, resource use, and economic outcomes associated with atypical antipsychotic prescriptions in children and adolescents with attention-deficit hyperactivity disorder in Quebec. *Can J Psychiatry*. 2014 Nov;59(11):597-608.
- Campone M, **Yang H**, Faust E, Kageleiry A, Signorovitch JE, Zhang J, Gao H. Cost of adverse events during treatment with everolimus plus exemestane or single-agent chemotherapy in patients with advanced breast cancer in Western Europe. *J Med Econ*. 2014 Aug;28:1-20.
- **Yang H**, Chaudhari P, Zhou ZY, Wu EQ, Patel C, Horn DL. Budget impact analysis of liposomal amphotericin B and amphotericin B lipid complex in the treatment of invasive fungal infections in the United States. *Appl Health Econ Health Policy*. 2014 Feb;12(1):85-93.
- Wong MK, **Yang H**, Signorovitch JE, Wang X, Liu Z, Liu NS, Qi CZ, George DJ. Comparative outcomes of everolimus, temsirolimus and sorafenib as second targeted therapies for metastatic renal cell carcinoma: a US medical record review. *Curr Med Res Opin*. 2014 Apr;30(4):537-45.
- Sikirica V, Xie J, He TL, Erder M, Hodgkins P, **Yang H**, Samuelson T, and Wu EQ. Immediate-release versus extended-release guanfacine for treatment of attention-deficit/hyperactivity disorder. *Am J Pharm Benefits*. 2013;5(4):e85-e94.
- Xie J, Diener M, De G, **Yang H**, Wu EQ, Namjoshi M. Budget impact analysis of everolimus for the treatment of hormone receptor positive, human epidermal growth factor receptor-2 negative (HER2-) advanced breast cancer in the United States. *J Med Econ*. 2013;16(2):278-88.
- Erder MH, Signorovitch JE, Setyawan J, **Yang H**, Parikh K, Betts KA, Xie J, Hodgkins P, Wu EQ. Identifying patient subgroups who benefit most from a treatment: using administrative claims data to uncover treatment heterogeneity. *J Med Econ*. 2012;15(6):1078-87.
- Strober BE, Sobell JM, Duffin KC, Bao Y, Guérin A, **Yang H**, Goldblum O, Okun MM, Mulani PM. Sleep quality and other patient-reported outcomes improve after patients with psoriasis with suboptimal response to other systemic therapies are switched to adalimumab: results from PROGRESS, an open-label Phase IIIB trial. *Br J Dermatol*. 2012 Dec;167(6):1374-81.
- Bron M, Marynchenko M, **Yang H**, Yu AP, Wu EQ. Hypoglycemia, treatment discontinuation, and costs in patients with type 2 diabetes mellitus on oral antidiabetic drugs. *Postgraduate Medicine*. 2012 Jan;124(1), 124-132.
- Kim Le T, Winfree KB, **Yang H**, Marynchenko M, Yu AP, Frois C, Wu EQ. Treatment patterns and economic burden of metastatic and recurrent locally-advanced head and neck cancer patients. *J Med Econ*. 2012;15(4):786-95.

- Yu AP, **Yang H**, Wu EQ, Setyawan J, Mocarski M, Blum S. Incremental third-party costs associated with COPD exacerbations: a retrospective claims analysis. *J Med Econ.* 2011, 14(3):315-323.
- **Yang H**, Yu AP, Wu EQ, Yim YM, Yu E. Healthcare costs associated with bevacizumab and cetuximab in second-line treatment of metastatic colorectal cancer. *J Med Econ.* 2011, 14(5):542-552.
- Hines KA, Cryderman DE, Flannery KM, **Yang H**, Vitalini MW, Hazelrigg T, Mizzen CA, Wallrath LL. Domains of heterochromatin protein 1 required for *Drosophila melanogaster* heterochromatin spreading. *Genetics.* 2009, 182(4):967-977.
- **Yang H**, Mizzen CA. The multiple facets of histone H4-lysine 20 methylation. Review. *Biochem Cell Biol.* 2009, 87(1):151-161.
- **Yang H**, Pesavento JJ, Starnes TW, Cryderman DE, Wallrath LL, Kelleher NL, Mizzen CA. Preferential dimethylation of histone H4-lysine 20 by Suv4-20. *J Biol Chem.* 2008 May 2;283(18):12085-92.
- Pesavento JJ, **Yang H**, Kelleher NL, Mizzen CA. Certain and progressive methylation of histone H4 at lysine 20 during the cell cycle. *Mol Cell Biol.* 2008, 28(1):468-486.
- Shi J, Li J, **Yang H**, Wang K, Wu Q, Zhang J. Proliferation and apoptosis of smooth muscle cells in benign prostate hyperplasia. *Chinese J. Pathophysiol.* 2005, 21: 817-819.
- **Yang H**, Elcock AH. Association lifetimes of hydrophobic amino acid pairs measured directly from molecular dynamics simulations. *J Am Chem Soc.* 2003, 125(46):13968-13969.