

**OSCAR PATTERSON-LOMBA, PH.D.**  
**Vice President**

Direct: 617 425 8165  
Fax: 617 425 8001  
oscar.patterson-lomba@analysisgroup.com

111 Huntington Avenue  
14th Floor  
Boston, MA 02199

Dr. Patterson-Lomba has broad experience using mathematical epidemiology and statistical approaches to address a wide range of health care research challenges. His expertise includes comparative efficacy and safety, indirect mixed-treatment comparisons, dynamic transmission models, predictive analytics, burden of illness, and individualized medicine, as well as designing and implementing analytics platforms to enhance research capabilities. Dr. Patterson-Lomba has applied statistical methodologies to study clinical and economic outcomes in a broad range of disease areas, including infectious diseases, oncology, psychiatry, immunology, and ophthalmology, and has experience using a variety of data sources, including clinical trials, administrative claims, medical charts, surveys, and medical literature. His research has also involved using complex dynamic models of infectious diseases to assess the cost effectiveness of interventions such as treatment, vaccination, and non-pharmacological strategies. His work has been published in peer-reviewed journals and presented at clinical and economic research conferences. Prior to joining Analysis Group, Dr. Patterson-Lomba was a postdoctoral fellow in the Department of Biostatistics at the Harvard T.H. Chan School of Public Health.

**EDUCATION**

2014            Ph.D., applied mathematics, Arizona State University  
2010            B.S., physics, Montclair State University

**PROFESSIONAL EXPERIENCE**

2015–Present    Analysis Group, Inc.  
                    *Vice President (2023–Present)*  
                    *Manager (2019–2022)*  
                    *Associate (2015–2018)*

2017–2018      Harvard T.H. Chan School of Public Health Department of Biostatistics  
                    *Consultant*

2014–2015      Harvard T.H. Chan School of Public Health Department of Biostatistics  
                    *Postdoctoral Fellow*

2013            Massachusetts Institute of Technology Library for Information and Decision Systems  
                    *Visiting Scholar*

## PUBLICATIONS AND PRESENTATIONS

### Peer-reviewed journal articles

1. Kantor D, Pham T, **Patterson-Lomba O**, Swallow E, Dua A, Gupte-Singh K. *Cost per relapse avoided for ozanimod versus other selected disease-modifying therapies for relapsing-remitting multiple sclerosis in the United States*. Neurology and Therapy (Under review)
2. **Patterson-Lomba O**, Gomez-Lievano A. *On the scaling patterns of infectious disease incidence in cities*. Epi-SCIENCE (Accepted)
3. Swallow E, Pham T, **Patterson-Lomba O**, Yin L, Gomez-Lievano A, Liu J, Tencer T, Gupte-Singh K. *Comparative Efficacy and Safety of Ozanimod and Ponesimod for Relapsing Multiple Sclerosis: A Matching-Adjusted Indirect Comparison*. Multiple Sclerosis and Related Disorders (2023)
4. Driessen MT, Cohen JM, Thompson SF, **Patterson-Lomba O**, Seminerio MJ, Carr K, Totev TI, Sun R, Yim E, Mu, F, Ayyagari R. *Real-world effectiveness after initiating fremanezumab treatment in US patients with episodic and chronic migraine or difficult-to-treat migraine*. The Journal of Headache and Pain (2022)
5. Driessen MT, Cohen JM, **Patterson-Lomba O**, Thompson SF, Seminerio M, Carr K, Totev TI, Sun R, Yim E, Mu F, Ayyagari R. *Real-world effectiveness of fremanezumab in migraine patients initiating treatment in the United States: results from a retrospective chart study*. The Journal of Headache and Pain (2022)
6. Jaspard M, Mulangu S, Juchet S, Serra B, Dicko I, Lang HJ, Baka BM, Komanda GM, Katsavara JM, Kabuni P, **Patterson-Lomba O**, Mambu FM. *Development of the PREDS score to predict in-hospital mortality of patients with Ebola virus disease under advanced supportive care: Results from the EVISTA cohort in the Democratic Republic of the Congo*. eClinicalMedicine (2022)
7. Daniels V, Saxena K, **Patterson-Lomba O**, Gomez-Lievano A, Saah A, Luxembourg A, Velicer C, Chen YT, Elbasha E. *Modeling the health and economic implications of adopting a 1-dose 9-valent human papillomavirus vaccination regimen in a high-income country setting: An analysis in the United Kingdom*. Vaccine (2022)
8. Saxena K, Marden JR, Carias C, Bhatti A, **Patterson-Lomba O**, Gomez-Lievano A, Yao L, Chen YT. *Impact of the COVID-19 pandemic on adolescent vaccinations: projected time to reverse deficits in routine adolescent vaccination in the United States*. Current medical research and opinion (2021)
9. Schein J, Houle C, Urganus A, Cloutier M, **Patterson-Lomba O**, Wang Y, King S, Levinson W, Guerin A, Lefebvre P, Davis LL. *Prevalence of post-traumatic stress disorder in the United States: a systematic literature review*. Current medical research and opinion (2021)

10. Gomez-Lievano A, **Patterson-Lomba O**. *Estimating the drivers of urban economic complexity and their connection to economic performance*. Royal Society Open Science (2021)
11. Swallow E, **Patterson-Lomba O**, Ayyagari R, Pelletier C, Mehta R, Signorovitch J. *Causal inference and adjustment for reference-arm risk in indirect treatment comparison meta-analysis*. Journal of comparative effectiveness research (2020)
12. Swallow E, **Patterson-Lomba O**, Yin L, Mehta R, Pelletier C, Kao D, Sheffield JK, Stonehouse T, Signorovitch J. *Comparative safety and efficacy of ozanimod versus fingolimod for relapsing multiple sclerosis*. Journal of Comparative Effectiveness Research (2020)
13. **Patterson-Lomba O**, Ayyagari R, Carroll B. *Risk assessment and prediction of TD incidence in psychiatric patients taking concomitant antipsychotics: a retrospective data analysis*. BMC neurology (2019)
14. **Patterson-Lomba O**, Dalal AA, Ayyagari R, Liu O, Dervishi E, Platt E, Chandiwana D, O'Shaughnessy JA. *Systematic literature review of clinical trials of endocrine therapies for premenopausal women with metastatic HR+ HER2- breast cancer*. The Breast Journal (2019)
15. Signorovitch JE, Yang H, **Patterson-Lomba O**, Xiang CQ, Parisi M, Levy B. *Effectiveness of first-line treatments in metastatic squamous non-small lung cancer*. Current Oncology (2019)
16. Ayyagari R, **Patterson-Lomba O**, Liu O, Derivishi E, Chandiwana D, Dalal A, O'Shaughnessy J. *Systematic literature review of clinical trials of endocrine therapies for premenopausal women with metastatic HR+ HER2-breast cancer*. The Breast Journal (2019)
17. Ayyagari R, Tang D, **Patterson-Lomba O**, Zhou Z, Xie J, Chandiwana D, Niravath PA. *Progression-free survival with endocrine-based therapies following progression on non-steroidal aromatase inhibitor among postmenopausal women with hormone receptor positive, human epidermal growth factor receptor-2 negative metastatic breast cancer: a network meta-analysis*. Current medical research and opinion (2018)
18. 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*. Advances in Therapy (2018)
19. Ayyagari R, Tang D, **Patterson-Lomba O**, Zhou Z, Xie J, Chandiwana D, Niravath PA. *Progression-free survival with endocrine-based therapies following progression on non-steroidal aromatase inhibitor among postmenopausal women with hormone receptor positive, human epidermal growth factor receptor-2 negative metastatic breast cancer: a network meta-analysis*. Current medical research and opinion (2018)

20. Ayyagari R, Tang D, **Patterson-Lomba O**, Zhou Z, Xie J, Chandiwana D, Niravath PA. *Progression- Free Survival with First-Line Endocrine-Based Therapies among Postmenopausal Women with HR+/ HER2-Metastatic Breast Cancer: A Network Meta-Analysis*. Clinical Therapeutics (2018)
21. Gomez-Lievano A, **Patterson-Lomba O**, Hausmann R. *Explaining the Prevalence, Scaling and Variance of Urban Phenomena*. Nature Human Behavior (2016)
22. Valeri L, **Patterson-Lomba O**, Gurmu Y, Ablorh A, Bobb J, Townes W, Harling G. *Predicting subnational Ebola virus disease epidemic dynamics from sociodemographic indicators*. PloS ONE (2016)
23. **Patterson-Lomba O**, Safan M, Towers S, Taylor J. *Modeling the role of healthcare access inequalities in epidemic outcomes*. Mathematical Biosciences and Engineering (2016)
24. Wu JW, **Patterson-Lomba O**, Novistky V, Pagano M. *A generalized entropy measure of within-host viral diversity for identifying recent HIV-1 infections*. Medicine (2015)
25. **Patterson-Lomba O**, Wu JW, Pagano M. *Assessing biases in the evaluation of classification assays for HIV infection recency*. PloS ONE (2015)
26. Castillo-Chavez C, Curtiss R, Daszak P, Levin S, **Patterson-Lomba O**, Perrings C, Poste C, and Towers S. *Beyond Ebola: lessons to mitigate future pandemics*. Lancet Global Health (2015)
27. **Patterson-Lomba O**, Goldstein E, Gómez-Liévano A, Castillo-Chavez C, Towers S. *Per-capita Incidence of Sexually Transmitted Infections Increases Systematically with Urban Population Size: a Cross-sectional Study*. Sexually Transmitted Infections (2015)
28. Chunara R, **Patterson-Lomba O**, Goldstein E, Brownstein J. *Estimating influenza attack rates in the United States using a participatory cohort*. Nature Scientific Reports (2015)
29. Towers S, **Patterson-Lomba O**, Castillo-Chavez C. *Emerging Disease Dynamics: The Case of Ebola*. SIAM News (2014)
30. Towers S, **Patterson-Lomba O**, Castillo-Chavez C. *Temporal variations in the effective reproduction number of the 2014 West Africa Ebola outbreak*. PloS Currents Outbreaks (2014)
31. **Patterson-Lomba O**, Van Noort S, Cowling B, Wallinga J, Gomes G, Lipsitch M, Goldstein E. *Utilizing syndromic surveillance data for estimating levels of influenza circulation*. American Journal of Epidemiology (2014)
32. **Patterson-Lomba O**, Althouse B, Goerg G, Hébert-Dufresne L. *Optimizing Treatment Regimes to Hinder Antiviral Resistance in Influenza Across Time Scales*. PloS ONE (2013)
33. Hébert-Dufresne L, **Patterson-Lomba O**, Goerg G, Althouse B. *Pathogen mutation modeled by competition between site and bond percolation*. Physics Review Letters (2013)

34. Althouse B, **Patterson-Lomba O**, Goerg G, Hébert-Dufresne L. *The Timing and Targeting of Treatment in Influenza Pandemics Influences the Emergence of Resistance in Structured Populations*. PloS Computational Biology (2013)

### Posters and presentations

1. Synthesis of Matching-Adjusted Indirect Comparisons of Ozanimod for Relapsing-Remitting Multiple Sclerosis. ACTRIMS Forum (2023)
2. Comparative Efficacy and Safety of Ozanimod and Ponesimod for Relapsing Multiple Sclerosis: A Matching-Adjusted Indirect Comparison. Value in Health (2022)
3. Reductions in Migraine and Headache Days After Initiating Fremanezumab for Patients with Migraine and Prior Use of Another Monoclonal Antibody Targeting the CGRP Pathway in a US Real-World Setting. Value in Health (2022)
4. Incremental Cost per Relapse Avoided of Ozanimod Compared with First-Line Disease-Modifying Therapies for Relapsing Forms of Multiple Sclerosis. Value in Health (2022)
5. Real-world data on reductions in migraine and headache days with fremanezumab treatment for US patients with chronic and episodic migraine: Results from a physician chart review study. Headache (2021)
6. Comparison of responder rates between fremanezumab, erenumab and onabotulinumtoxinA among patients with migraine with  $\geq 3$  prior treatment failures: A Network Meta-Analysis. Journal of Headache and Pain (2019)
7. Reductions in headache impact test (HIT-6) scores with fremanezumab and erenumab among patients with episodic migraine (EM) and 2–4 prior treatment failures: A network meta-analysis. Journal of the Neurological Sciences (2019)
8. Number-needed-to-treat analysis and risk-benefit assessment of Ozanimod compared with first-line disease-modifying therapies for relapsing-remitting multiple sclerosis. 35th Congress of the European Committee for Treatment and Research in Multiple Sclerosis (2019)
9. Applications of Artificial Intelligence-Based Methodology in Literature Reviews: Two Case Studies. ISPOR Europe (2018)
10. The drivers of complexity of urban phenomena and their implications. International Conference on Complex Systems (2018)
11. Predictors of Tardive Dyskinesia in Psychiatric Patients taking Concomitant Antipsychotics. American Psychiatric Association (2018)

12. Real-World Comparative Effectiveness of Treatment Sequences in Metastatic Non-Small Cell Lung Cancer with Squamous Histology. European Lung Cancer Congress (2018)
13. Comparative Effectiveness of nab-Paclitaxel Plus Gemcitabine vs FOLFIRINOX in Metastatic Pancreatic Cancer: A Nationwide Chart Review in the United States. American Society of Clinical Oncology Gastrointestinal Cancers Symposium (2018)
14. Association of Corticosteroid Exposure with Ophthalmologic Complications and Systemic Adverse Events in Non-Infectious Uveitis Patients Using Administrative Claims in the United States. American College of Rheumatology/Association of Rheumatology Annual Meeting (2017)
15. Progression-Free Survival (PFS) with First-Line Endocrine-Based Therapies among Postmenopausal Women with HR+/ HER2-Metastatic Breast Cancer: A Systematic Literature Review and Network Meta-Analysis. Academy of Managed Care Pharmacy (2017)
16. Comparative efficacy with endocrine-based combination versus monotherapy among postmenopausal women with HR+/ HER2-metastatic breast cancer: A network meta-analysis. Journal of Clinical Oncology (2017)
17. Progression-free survival with endocrine-based therapies following progression on a non-steroidal aromatase inhibitor among postmenopausal women with hormone receptor positive, human epidermal growth factor receptor-2 negative advanced breast cancer: a network meta-analysis. ISPOR (2017)
18. Measuring Potential Improvements in Health Outcomes via Individualized Treatment Assignment. ISPOR 21st Annual International Meeting (2016)
19. Improving Identification of Recent HIV-1 Infections. EPIDEMICS 5 Conference (2015)
20. A Generalized Entropy Measure of Viral Diversity for Identifying Recent HIV-1 Infections. Conference on Retroviruses and Opportunistic Infections (2015)
21. A generalized-entropy approach for improving accuracy and important considerations for assay evaluation. HIV Incidence Assays; Using Data to Drive Decisions Symposium (Bill and Melinda Gates Foundation) (2015)
22. Optimizing Treatment Regimes to Hinder Antiviral Resistance at Different Time Scales. EPIDEMICS 4 Conference (2013)
23. Challenges in the utilization of syndromic surveillance data for the estimation of influenza attack rates. (panel talk) Digital Disease Detection Conference (2013)
24. Optimizing Treatment Regimes to Hinder Antiviral Resistance in Influenza. SIAM Annual Meeting (2013)
25. Population-Level Antimicrobial Resistance in Influenza: A Long-Term Perspective. Mathematical Theoretical Biology Institute (2012)

26. Coevolutionary epidemic dynamics: treatment, mutation, demographics and economy. Santa Fe Institute, Complex Systems Summer School (2012)

### **SELECTED HONORS AND AWARDS**

- 2015 Yerby Postdoctoral Fellowship, Harvard University  
2014 CLAS Graduate Excellence Award, Arizona State University  
2012 Participant, Santa Fe Institute Complex Systems Summer School  
2011 LSAMP Bridge to the Doctorate Fellowship, Arizona State University (2011–2013)  
2011 Outstanding Student in Physics for the 2010–2011 Class, Montclair State University  
2011 Hodson Physics Scholarship, Montclair State University

### **COMPUTING SKILLS**

R, Mathematica, MATLAB, Excel, PowerPoint, Word, LATEX, C++, Maple, NetLogo, SAS

### **LANGUAGES**

Spanish (Native); English (Fluent); French and Italian (Basic)