

ALAN G. WHITE, PH.D.
Managing Principal, Analysis Group, Inc.

Phone: 617 425 8217
Fax: 617 425 8001
alan.white@analysisgroup.com

111 Huntington Avenue
10th Floor
Boston, MA 02199

Dr. White focuses on antitrust, intellectual property, and tax/transfer pricing matters in a range of industries, with a particular interest in health care issues. He has worked on general commercial business litigations such as allegations of false advertising and breach of contract; investigations into alleged off-label promotion of prescription drugs; and the economic impact of generic entry and substitution. He has also analyzed economic issues relevant to class certification and quantification of damages.

Dr. White has managed numerous commercial litigation matters, supporting academic and industry experts with expertise in industrial organization, statistics, health economics, and marketing. His tax and transfer pricing work has evaluated the arm's length nature of pricing in intercompany transactions, and the estimation of useful economic lives for various tangible and intangible assets. His non-litigation work has involved the development of empirical models for determining factors that may help identify patients at risk of prescription opioid abuse, as well as the estimation of societal economic costs of prescription opioid abuse.

His research and publications have focused on specific health economics issues, such as the costs of abuse, as well as the theory and implementation of various price indexes. Dr. White is an adjunct faculty member in the Department of Economics at Northeastern University in Boston.

EDUCATION

Ph.D.	Economics, University of British Columbia
M.Litt.	Economics, University of Dublin, Trinity College
B.A.	Economics and Mathematics, University of Dublin, Trinity College

PROFESSIONAL EXPERIENCE

1999–Present	Analysis Group, Inc., Boston, MA <i>Managing Principal</i> <i>Vice President</i> <i>Manager</i> <i>Associate</i>
2011–Present	Northeastern University, Boston, MA <i>Adjunct Faculty Member, Department of Economics</i>
1998–1999	University of British Columbia, Vancouver, Canada <i>Lecturer, Department of Economics</i>

1997 Statistics Canada, Ottawa, Canada
 Research Economist, Prices Division

SELECTED CASEWORK

- Utilized econometric estimation of a hedonic price equation to develop quality-adjusted price indexes for software applications
- Constructed an analytic model for estimating but-for price in a computer hardware patent infringement dispute
- Provided economic analysis and arguments in a vitamin industry price-fixing case
- Employed survey data to estimate demand price elasticities for various payment methods
- Developed bargaining models for assessment of arm's length prices for a variety of tax matters
- Provided economic analysis and support in valuation of an internet services company
- Analyzed direct and indirect costs associated with chronic medical conditions and diagnoses
- Analyzed economic factors relevant to class certification in a variety of industries
- Estimated the value contribution of specific patents embedded in products governed by a portfolio of patents
- Assisted with survey design in an alleged false advertising matter involving vitamins
- Valued the role of technology know-how in a transfer pricing matter
- Estimated damages arising from the alleged false advertising of over-the-counter drugs
- Provided rebuttal damages analysis in a pharmaceutical product liability case
- Assessed demand factors for prescription anti-ulcer medications
- Assessed the economic life of medical products in a transfer pricing matter
- Evaluated the damages impact of delayed reporting of average wholesale prescription drug prices
- Analyzed supply and demand conditions in labor markets for the provision of medical services
- Assisted in the economic valuation of a sports endorsement contract
- Assessed damages arising from alleged delay in generic entry
- Developed a predictive model to identify patients who may be at risk for prescription opioid abuse or dependence
- Estimated the societal economic cost of prescription opioid abuse
- Evaluated the arm's length nature of pricing in intercompany transactions
- Estimated the useful economic lives of various tangible and intangible assets

PUBLICATIONS (lead author in **bold**)

"The potential for litigation in new era of biosimilars" (with **C. Frois** and R. Mortimer), *Law360*, 2016 September 20.

"A model to quantify potential medical events avoided and cost savings from abuse deterrent opioids," A. White, M. Yenikomshian, M. Carson, E. Masters, C. Roland, *The Journal of Pain*, April 2016; Volume 17, Issue 4, Supplement, Page S41, DOI: <http://dx.doi.org/10.1016/j.jpain.2016.01.168>

"Healthcare resource utilization and work loss in dermatomyositis and polymyositis patients in a privately-insured US population," J. Bradford Rice, A. White, A. Lopez, P. Galebach, P. Schepman, B. Popelar and M. Philbin, *Journal of Medical Economics*, 2016 Jul;19(7):649-54. doi: 10.3111/13696998.2016.1151433. Epub 2016 Feb 19.

“Positive subjective measures in abuse liability studies and real-world nonmedical use: Potential impact of abuse-deterrent opioids on rates of nonmedical use and associated healthcare costs” (with J. LeCates; H. Birnbaum; W. Cheng; C. Roland, and J. Mardekian), *Journal of Opioid Management*, 2015 May-June; 11(3): 199-210.

“Societal economic benefits associated with an extended-release opioid with abuse-deterrent technology in the United States.” (with **N. Kirson**, A. Shei, H. Birnbaum, R. Ben-Joseph, LF Rossiter, and E. Michna), *Pain Medicine*, 2014; 15(9): 1450-4.

“Medical cost savings associated with an extended-release opioid with abuse-deterrent technology in the US,” (with **LF Rossiter**, N. Kirson, A. Shei, H. Birnbaum, R. Ben-Joseph and E. Michna), *Journal of Medical Economics*, 2014; 17(4): 279-87.

“Prescription Opioid Abuse: Challenges and Opportunities for Payers,” (with **N. Katz**, H. Birnbaum, M. Brennan, J. Freedman, G. Gilmore, D. Jay, G. Kenna, B. Madras, L. McElhaney, and R. Weiss), *American Journal of Managed Care*, 2013; 19(4): 295-302.

“A model to identify patients at risk for prescription opioid abuse, dependence, and misuse,” (with **B. Rice**, H. Birnbaum, M. Schiller, D. Brown, and C. Roland), *Pain Medicine*, 2012; 13(9): 1162-1173.

“Direct and Indirect Cost of Patients Treated with Extended-Release Oxymorphone HCl or Controlled-Release Oxycodone HCl,” (with **N. Kirson**, H. Birnbaum, M. Schiller, T. Waldman, K. Petersen, R. Ben-Joseph, T. Berner, and K. Summers), *Journal of Medical Economics*, 2012; 15(1): 1-9.

“Health Care and Work Loss Burden of Opioid Abuse, Dependence and Misuse,” (with H. Birnbaum, M. Schiller, T. Waldman, J. Cleveland, B. Setnik, G. Pixton, and C. Roland), *American Journal of Pharmacy Benefits*, 2011; 3(4): e59-e70.

“Societal Costs of Prescription Opioid Abuse, Dependence, and Misuse in the United States,” (with **H. Birnbaum**, M. Schiller, T. Waldman, J. Cleveland, and C. Roland), *Pain Medicine*, 2011; 12: 657-667.

“Analytic Models to Identify Patients At Risk for Prescription Opioid Abuse,” (with H. Birnbaum, M. Schiller, J. Tang, and N. Katz), *American Journal of Managed Care*, 2009; 15(12): 897-906.

“Development of a Budget-Impact Model to Quantify Potential Cost Savings from Prescription Opioids Designed to Deter Abuse and Ease of Extraction,” (with H. Birnbaum, D. Rothman, and N. Katz), *Applied Health Economics and Health Policy*, 2009; 7(1): 61-70.

“Direct and Indirect Costs of Pain Therapy for Osteoarthritis in an Insured Population in the United States,” (with H. Birnbaum, C. Janagap, S. Buteau, and J. Schein), *Journal of Occupational and Environmental Medicine*, 2008; 50(9): 998-1005.

“Price Indexes for Microsoft’s Personal Computer Software Products,” (with J. Abel and E. Berndt), in *Hard-to-Measure Goods and Services: Essays in Honor of Zvi Griliches*, E. Berndt and C. Hulten (eds.), Chicago: University of Chicago Press for the National Bureau of Economic Research Studies in Income and Wealth, Volume 67, 2007, Chapter 9; previously issued as NBER Working Paper No. 9966, September 2003.

“Estimated Costs of Prescription Opioid Analgesic Abuse in the United States in 2001: A Societal Perspective,” (with H. Birnbaum, J. Reynolds, P. Greenberg, M. Zhang, S. Vallow, J. Schein, and N. Katz), *Clinical Journal of Pain*, 2006; 22 (8): 667-676.

“Direct Costs of Opioid Abuse in an Insured Population in the United States,” (with H. Birnbaum, M. Mareva, M. Daher, S. Vallow, J. Schein, and N. Katz), *Journal of Managed Care Pharmacy*, 2005; 11 (6): 469-479.

“Economic Burden of Illness for Employees with Painful Conditions,” (with H. Birnbaum, M. Mareva, A. Henckler, P. Grossman, and D. Mallett), *Journal of Occupational and Environmental Medicine*, 2005; 47 (9):884-892.

“Hedonic Price Indexes for Personal Computer Operating Systems and Productivity Suites,” (with J. Abel, E. Berndt, and C. Monroe), *Annales d’Economie et de Statistique*, 2005; No. 79/80: 787-807; previously issued as NBER Working Paper, No. 10427, April 2004.

“Outlet Types and the Canadian Consumer Price Index,” *Canadian Journal of Economics*, 2000, 33 (2):488-505.

“Measurement Biases in Consumer Price Indexes,” *International Statistical Review*, 1999; 67 (3):311–325.

NEWSPAPER ARTICLES

“Report: Abuse-deterrent reformulation of OxyContin saved \$430M nationwide,” *Boston Business Journal*, April 25, 2014.

“Misery can’t be quantified, but fiscal toll of opioid abuse is measureable,” *The Boston Globe*, February 25, 2014

PRESENTATIONS

“Healthcare Resource Utilization and Work Loss in Dermatomyositis and Polymyositis Patients in a Privately-Insured Population in the U.S.,” (with **B. Rice**, A. Lopez, P. Galebach, P. Schepman, B. Popelar and M. Philbin), poster presented at the AMCP Nexus, Orlando, FL, October 2015.

“The True Costs of The Bay State’s Painkiller Epidemic.” *Commentary on WGBH News, Boston*, March 28, 2014

“The Relationship between Positive Subjective Measures in Abuse Liability Studies and Real-World Non-Medical Use: Potential Impact of Abuse Deterrent Opioids on Rates of Non-Medical Use and Associated Healthcare Costs,” (with J. LeCates, W. Cheng, C.L. Roland, D. Schaaf and J. Mardeklan), poster presented at the *American Academy of Pain Medicine’s 30th Annual Meeting*, Phoenix, AZ, March 2014.

“Estimating the payer-specific excess medical costs of opioid abuse in the U.S.,” (with **E. Michna**, N. Kirson, A. Shei, H. Birnbaum, R. Ben-Joseph, and L. Rossiter), poster presented at the 18th Annual International Meeting of the *International Society for Pharmacoeconomics and Outcomes Research*, New Orleans, LA, May 2013.

“Opioid Abuse: Financial Implications of Abuse Deterrent Formulations,” presented at the 7th Annual Researched Abuse, Diversion, and Addiction-Related Surveillance (RADARS) System Scientific Meeting, Rockville, MD, April 2013.

“A Model to Identify Patients At Risk for Prescription Opioid Abuse, Dependence, and Misuse,” (with **B. Rice**, H. Birnbaum, M. Schiller, D. Brown, C. Roland), poster presented at *PAINWeek*, Las Vegas, NV, September 2011.

“Direct and Indirect Cost of Privately-Insured Patients Treated with Oxymorphone Extended-Release or Oxycodone Controlled-Release Tablets,” (with **N. Kirson**, H. Birnbaum, M. Schiller, T. Waldman, K. Petersen, R. Ben-Joseph, T. Berner, and K. Summers), poster presented at the 16th Annual International Meeting of the *International Society for Pharmacoeconomics and Outcomes Research*, Baltimore, MD, May 2011.

“Societal Costs of Opioid Abuse, Dependence, and Misuse in the United States,” (with **H. Birnbaum**, M. Schiller, T. Waldman, J. Cleveland, B. Setnik, G. Pixton, and C. Roland), poster presented at the 15th Annual International Meeting of the *International Society for Pharmacoeconomics and Outcomes Research*, Atlanta, GA, May 2010.

“Health Care and Work Loss Burden of Opioid Abuse, Dependence and Misuse,” (with H. Birnbaum, M. Schiller, T. Waldman, J. Cleveland, B. Setnik, G. Pixton, and C. Roland), poster presented at the *Academy of Managed Care Pharmacy*, 2009 Educational Conference, San Antonio, TX, October 2009.

“Budget Impact Model of Prescription Opioids Designed to Deter Abuse or Ease of Extraction,” (with H. Birnbaum, D. Rothman, and N. Katz), poster presented at the 21st Annual Meeting and Showcase of the *Academy of Managed Care Pharmacy*, Orlando, FL, April 2009.

“Prescription Pain Therapy Switching Among Osteoarthritis Patients in a Privately Insured Population,” (with D. Ng, C. Benson, D. Moore, M. Lauve, and J. Schein), poster presented at the 20th Annual Meeting and Showcase of the *Academy of Managed Care Pharmacy*, San Francisco, CA, April 2008.

“Costs of Prescription Opioid Abuse and Cost Savings of Abuse-Deterrent Prescription Opioid Drugs,” (with H. Birnbaum and N. Katz), poster presented at the 10th Annual European Congress of the *International Society for Pharmacoeconomics and Outcomes Research*, Dublin, Ireland, October 2007.

“Cost of Pain Therapy for Osteoarthritis in a Privately Insured Population in the United States,” (with H. Birnbaum, S. Buteau, C. Janagap, and J. Schein), poster presented at the 12th Annual International Meeting of the *International Society for Pharmacoeconomics and Outcomes Research*, Arlington, VA, May 2007.

“Use of Claims Data in Constructing Price Indexes for Medical Services,” (with J. Abel and A. Castor), paper presented at the Annual Meeting of the *American Economic Association, Allied Social Science Associations*, Chicago, IL, January 2007.

“Direct Costs of Opioid Abuse Among an Insured Population in the U.S.,” (with H. Birnbaum, M. Mareva, M. Daher, N. Katz, S. Vallow, J. Schein, D. Doshi, and V. Sikirica), poster presentation at the *American Society of Health-System Pharmacists Meeting*, Orlando, FL, December 2004.

“Injury Condition Profile and Costs of Opioid Abuse Among an Insured Population in the U.S.,” (with H. Birnbaum, M. Mareva, M. Daher, N. Katz, S. Vallow, J. Schein, D. Doshi, and V. Sikirica), poster presentation at the 132nd Annual Meeting of the *American Public Health Association*, Washington, DC, November 2004.

“Hedonic Price Indexes for Personal Computer Operating Systems and Productivity Suites,” (with J. Abel, E. Berndt, and C. Monroe), presented at the Annual Meeting of the *American Economic*

Association, Allied Social Sciences Associations, Philadelphia, PA, January 2005, and Conference on Research on Income and Wealth, National Bureau of Economic Research, Cambridge, MA, July 2004.

“Weight Watching: An Application to PC Software Price Indexes,” paper presented at the *Conference on Research in Income and Wealth Conference on Price Index Concepts and Measurement, Vancouver, BC, June 2004.*

“Burden of Illness for Employees with Painful Conditions,” (with H. Birnbaum, M. Mareva, A. Henckler, R. Seifelden, and P. Grossman), poster presentation at the 9th Annual Meeting of the *International Society for Pharmacoeconomics and Outcomes Research, Washington, DC, May 2004.*

“Price Indexes for Prepackaged Software,” (with E. Berndt), presented at the Conference on Software, Growth, and the Future of the U.S. Economy, *National Academies Board on Science, Technology, and Economic Policy, Washington, DC, February 2004.*

“Price Indexes for Microsoft’s Personal Computer Software Products,” (with J. Abel and E. Berndt), paper presented at the Conference on Research in Income and Wealth, *National Bureau of Economic Research, Bethesda, MD, September 2003.*

“The Measurement of Stock Market Indexes,” presented at the *NBER Program on Technological Change and Productivity Measurement, August 2000.*

“Outlet Types and the Canadian Consumer Price Index,” presented at the *Canadian Economic Association Meetings, Toronto, Canada, May 1999* and at the *NBER Program on Technological Change and Productivity Measurement, March 2000.*

“The Equivalence of Total Factor Productivity and Cost Regressions in Decomposing Productivity Measures,” (with W.G. Waters, II), Division of Transportation and Logistics, University of British Columbia, presented at the *Georgia Productivity Workshop, Athens, Georgia, October 1998.*

ASSOCIATIONS

Member, American Economic Association

Member, International Society for Pharmacoeconomics and Outcomes Research

Member, American Bar Association

Member, National Association for Business Economics

Referee, *Journal of Managed Care Pharmacy, Pain Medicine*