

Exponent®
Engineering & Scientific Consulting

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Professional Profile

Dr. Watson specializes in biostatistics and has extensive experience in the statistical analysis of hospital discharge databases, medical claims databases, and accident databases. She also has experience in predictive analytics, reliability analysis, sampling methods, experimental design, data mining, and risk analysis.

Dr. Watson has collaborated with biomechanical engineers to create efficient designs for computer simulation experiments and to investigate injury patterns of pedestrians in motor vehicle accidents using the National Automotive Sampling System. She has worked with scientists in health on epidemiologic studies examining the incidence and treatment of glaucoma patients, performing meta-analyses of studies concerning uterine cancer, and looking at treatment patterns of hip or knee replacements. In addition, she has teamed with engineers to inspect failure trends of issued identification cards, to calculate failure rates and projected failures from warranty claims data, and to estimate injury risk from different consumer products. She has experience using large data bases, such as Medicare claim records, warranty claims databases, NASS CDS, NASS GES, FARS, NFIRS, NEISS and NIS.

Before joining Exponent, Dr. Watson attended New York University and served as a graduate assistant in the Division of Biostatistics at New York University, School of Medicine. Her background is in biology and mathematics. Her thesis research includes the application of statistical methods to local clustering of disease, focused clustering of disease near a putative hazard, and disease mapping utilizing Bayesian hierarchical modeling.

Academic Credentials & Professional Honors

Ph.D., Environmental Health Science, New York University, 2008

B.A., Mathematics and Biology, Claremont McKenna College, 2002

Professional Affiliations

American Statistical Association

Institute of Mathematical Statistics

Publications

Dore DD, Kyle M, Burns D, Murray CR, Watson H, Swaney J, Spevack S, Leonhard M, Simon M, Moynihan E, Lapane KL, Wang SV, Longo CL, Ritchey ME. Cardiovascular safety of fixed-dose extended-release naltrexone/bupropion in clinical practice. Obesity Pillars. 2025;100169. ISSN 2667-3681. https://doi.org/10.1016/j.obpill.2025.100169.

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Tsuji, J.S., Lennox K.P., Watson, H.N., Chang E.T., Essential concepts for interpreting the dose-response of low-level arsenic exposure in epidemiological studies, Toxicology 457 (2021).

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Etkin CD, Lau EC, Watson HN, Kurtz SM, Gioe TJ, Springer BD, Lewallen DG, Bozic KJ. What Are the Migration Patterns for U.S. Primary Total Joint Arthroplasty Patients? Clin Orthop Relat Res. 2019 Jun;477(6):1424-1431

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Kurtz SM, Lau E, Watson H, Schmier JK, Parvizi J. Economic burden of periprosthetic joint infection in the United States. Journal of Arthroplasty 2012; 27:61-65 e1.

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Yim J, Zhu L-C, Chiriboga L, Watson HN, Goldberg JD, Moreira AL. Histologic features are important prognostic indicators in early stages lung adenocarcinomas. Modern Pathology 2007; 20:233.

Book Chapters

Jaekel DJ, Ong KL, Lau EC, Watson HN, Kurtz SM. Epidemiology of total hip and knee arthroplasty infection. In: Periprosthetic Joint Infection of the Hip and Knee. Springer BD and Javad P (eds), Springer-Verlag, London, England, November 2013.

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Presentations

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Watson H, Steffey, D. Statistical assessment of injury diagnosis and causation. Presentation, Joint Statistical Meeting, San Diego, CA, 2012.

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Ong KL, Patel J, Watson H, Helmus M, Kuehn C, Ochoa J. Historical trends in outcomes following aortic and mitral heart valve replacement procedures: A population-based study of 29,582 Medicare patients from 1997 to 2009. Poster No. PMD1, 17th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research, Washington, DC, June 2-6, 2012.

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Watson H. Using the National Inpatient Sample (NIS) database to identify injury patterns from external causes of injury. Presentation, Joint Statistical Meeting, Vancouver, Canada, 2010.

Watson H, Goldberg JD. Extensions of spatial statistical methods to incorporate spatial dependency and time constraints with application to breast cancer incidence in New York State. Presentation, New York University, School of Medicine, Department of Environmental Health, New York, NY, 2008.

Watson H, Goldberg JD, Liu M. Spatial analysis of breast cancer incidence in Rockland County, New York County, and Western Queens County. Presentation, Joint Statistical Meeting, Salt Lake City, UT, 2007.

Watson H, Goldberg JD, Liu M. Spatial statistical methods for small-area health data with application to the association of breast cancer incidence and local power plant emissions. Presentation, Joint Statistical Meeting, Seattle, WA, 2006.