



**Exponent®**  
Engineering & Scientific Consulting

**Ekaterina Cleary, Ph.D.**

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## Professional Profile

Dr. Cleary is a data scientist with expertise in visual data analytics. She has over a decade of experience in life sciences performing epidemiology, biostatistics, and genomics research to provide data-driven recommendations that inform health policy. She specializes in database management and rigorous analysis of data using a broad base of statistical and visualization tools integrated with cloud computing.

Dr. Cleary has contributed analytic expertise to a variety of projects focused on human health and safety. Specifically, she performed analysis of Covid-19 and other health outcomes using a large cohort of Nursing Home EMR data, studied spinal surgery complications and trends in robotic-assisted surgeries and analyzed product recalls. In the area of environmental research, Dr. Cleary has evaluated exposure to particle and chemical pollution in the air and in water.

Dr. Cleary received her Ph.D. in Biomedical Engineering and Biotechnology from the University of Massachusetts where her dissertation focused on statistical modeling of environmental risk factors influencing Alzheimer's disease progression, specifically ozone and particulate matter. Contemporaneously, she led the design of an interactive map visualizing ultrafine particle pollution in Boston's Chinatown, which was used as an interventional health literacy tool. Her first consulting experience at that time was focused on quantifying associations of In-Vitro Fertilization with birth complications, including increased birth weight and rates of monozygotic twinning.

Prior to joining Exponent, Dr. Cleary was a Lead Data Analyst at the Center for Integration of Science and Industry at Bentley University where her research examined the public sector's contribution to the basic science underlying new drug discovery. Additional research initiatives were largely focused on analyzing value creation in the pharmaceutical and biotech industries, including company financials, productivity, and biomedical innovation. During this time, she also gained extensive teaching experience as an Adjunct Professor, having developed a Data Visualization course for graduate students and university faculty/staff.

## Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering & Biotechnology, University of Massachusetts, Lowell, 2016

M.S., Bioinformatics, Boston University, 2009

B.S., Biology/Bioinformatics, University of Massachusetts, Lowell, 2007

Bentley University Outstanding Scholarly Contribution Award, 2019

## Academic Appointments

Adjunct Professor, Mathematical Sciences, Bentley University, 2018-2019

## Prior Experience

Research Associate, Bentley University, Center for Integration of Science and Industry, 2016 – 2021

Statistical consultant, Boston IVF, 2015 – 2020

Graduate Research Assistant, University of Massachusetts Lowell, 2011 – 2015

Summer Intern, Ecole Normale Supérieure de Paris (INSERM), Institut de Biologie, Paris, France, 2011

Bioinformatics analyst, Massachusetts General Hospital (MGH), 2009 – 2011

Summer Intern, Dana Farber Cancer Institute, 2008

## Professional Affiliations

Society of Children's Book Writers and Illustrators

## Languages

French

Russian

## Publications

Galkina Cleary E, Jackson MJ, Zhou EW, Ledley FD. (2023) Comparison of Research Spending on New Drug Approvals by the National Institutes of Health vs the Pharmaceutical Industry, 2010-2019. JAMA Health Forum. 2023;4(4):e230511. doi:10.1001/jamahealthforum.2023.0511

Gan W, Manning KJ, Cleary EG, Fortinsky RH, Brugge D (2023) Exposure to ultrafine particles and cognitive decline among older people in the United States. Environ Res. 227:115768

Cleary EG, McNamee LM, de Boer S, Holden J, Fitzgerald L, Ledley FD (2021) Comparing long-term value creation after biotech and non-biotech IPOs, 1997-2016. PLoS ONE 16(1): e0243813.

McNamee LM, Cleary EG, Zhang S, Salim U, Ledley FD (2020), Late-Stage Product Development and Approvals by Biotechnology Companies After Initial Public Offering, 1997-2016, Clinical Therapeutics

Cleary, E. G., Jackson, M. J., Folchman-Wagner, Z., & Ledley, F. D. Foundational research and NIH funding enabling emergency use authorization of remdesivir for COVID-19. Medrxiv, 2020

Cleary E.G., Ledley F.D. NIH funding for research underlying new cancer therapies: the importance of spillover effects. Lancet Oncology, 21(3):755-757, 2020

Ledley F.D., McCoy S.S., Vaughan G, Cleary E.G. Profitability of Large Pharmaceutical Companies Compared with Other Large Public Companies. JAMA, 323(9):834–843, 2020

Vaughan D.A., Seidler E.A., Murphy L.A, Cleary E.G., Penzias A., Norwitz E.R., Sakkas D. Double trouble? Clinic-specific risk factors for monozygotic twinning. Fertility and Sterility, 2020

Wong C., Wu H.C., Galkina Cleary E., Patton A.P., Xie A., Koch-Weser S. and Brugge D. Visualizing Air Pollution: Communication of Environmental Health Information in a Chinese Immigrant Community. Journal of Health Communication, 2019

Galkina Cleary, E., Beierlein, J. M., Khanuja, N., McNamee, L. M. and Ledley, F. D. Contribution of NIH funding to new drug approvals 2010-2016. Proceedings of the National Academy of Sciences USA. 2018

Galkina Cleary, E., Cifuentes, M., Grinstein, G., Brugge, D. and Shea, T. B. Association of Low-Level Ozone with Cognitive Decline in Older Adults. Journal of Alzheimer's disease: JAD, 61 (1), 67-78, 2018

E. Galkina, A.P. Patton, H.C. Wu, J. Stubblefield, W. Mass, G. Grinstein, S. Koch-Weser, D. Brugge and C. Wong. "Making Air Pollution Visible: A Tool for Promoting Environmental Health Literacy", J JMIR public health and surveillance, 3 (2), e16, 2017.

K. Maas, E. Galkina, K. Thornton, A. Penzias and D. Sakkas. "No Change in Live Birth Weight of IVF Singleton Deliveries Over an 18-Year Period Despite Significant Clinical and Laboratory Changes", Hum Reprod., pii: dew173, July 4. 2016.

E.I. Galkina, A. Shin, K.R. Coser, T. Shioda, I.S. Kohane, I.S. Seong, V.C. Wheeler, J.F. Gusella, M.E. MacDonald and J-M. Lee. "HD CAGnome: a search tool for huntingtin CAG repeat length-correlated genes," PLoS One, vol. 9, pp. e95556, Apr 21. 2014

JM. Lee, E.I. Galkina, R.M. Levantovsky, E. Fossale, MA. Anderson, T. Gillis, J.S. Mysore, K.R. Coser, T. Shioda, B. Zhang, M. Furia, J. Derry, I.S. Kohane, I.S. Seong, V.C. Wheeler, J.F. Gusella and M.E. MacDonald, "Dominant effects of the Huntington's disease HTT CAG repeat length are captured in gene-expression data sets by a continuous analysis mathematical modeling strategy," Hum.Mol.Genet., Apr 24. 2013

## **Presentations**

E.I. Galkina and G.G. Grinstein, "Regional Differences in Diagnostic Conversion to Dementia," IEEE's 18th International Conference on Information Visualization (iV2014), Paris, France, 2014.

E.I. Galkina and G.G. Grinstein, "Challenges of Exploratory Visualization of Gene-Environment Interaction in Alzheimer's Disease", IEEE's 16th International Conference on Information Visualization (iV2012), Montpellier, France, 2012.

## **Additional Education & Training**

Post-doctoral fellowship at The Center for Integration of Science and Industry, Bentley University (2021)

Tufts CSDD Postgraduate Course in Clinical Pharmacology, Drug Development and Regulation (2017)

## **Peer Reviews**

Neuroepidemiology