

Alexander 'Sandy' Preiss

www.sandypreiss.github.io

preisssa@gmail.com

919-522-8755

Pisgah Forest, NC

EDUCATION

Master of Science in Analytics	May 2020
Institute for Advanced Analytics, NC State University, Raleigh, NC	
Master of International Studies	May 2015
NC State University, Raleigh, NC	
Bachelor of Arts in Psychology	May 2009
University of North Carolina, Chapel Hill, NC	

SKILLS

- *Technical:* supervised and unsupervised machine learning, applied natural language processing, LLM/RAG pipelines, causal inference methods, survival analysis, simulation modeling, data visualization
- *Software:* Python, PySpark, SQL, R, AWS, CI/CD, version control
- *Business:* stakeholder engagement, identifying opportunities, developing requirements, agile project management, presenting to audiences ranging from executive to academic

PROFESSIONAL EXPERIENCE

RTI International (Remote)

Data Science Manager

May 2024 – Present

Research Data Scientist

Jun 2020 – May 2024

- Supervise a team of five data scientists and support their professional growth
- Build relationships with internal and external collaborators; identify and execute on opportunities to apply data science techniques to a broad range of research tasks
- Developed a RAG Q&A system enabling interaction with the findings of a large federal survey, using Haystack and open-source LLMs
- Led cross-functional teams for several target trial emulation studies. Extracted causal insights from a distributed EHR repository, using techniques like propensity and censoring weights, exact matching, and ML-based computable phenotypes in PySpark.
- Developed a cancer screening simulation model as an open-source Python package. Architected AWS tooling to run simulation experiments using Batch, Fargate, ECR, S3.
- Published over three papers per year, with over 800 citations and an h-index of 9
- Contributed to proposals leading to over \$23M of new business

American Cancer Society (Raleigh, NC)

Senior Data and Evaluation Manager

Mar 2019 – Jun 2019

Data Manager

Nov 2016 – Mar 2019

- Led data strategy and evaluation for a multimillion-dollar HPV vaccination program
- Created a logic model and evaluation plan, including process and outcome measures
- Designed data collection instruments and trained hundreds of staff on their use
- Quantified program impact in terms of cancers averted and cost effectiveness (to make them compelling to laypeople and executive audiences)
- Built interactive Tableau dashboards to visualize program impact
- Presented program impact at an executive leadership meeting; helped convince ACS leaders to make HPV vaccination a core component of their mission platform

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Ipas (*an international public health NGO*), (Chapel Hill, NC)

Global Data Analyst

May 2015 – Nov 2016

- Managed Ipas's enterprise CRM database for monitoring and evaluation
- Translated business needs into SQL database structures and reports
- Developed tools to automate data extraction and processing for donor reporting
- Trained and supported hundreds of database users around the world

PUBLICATIONS

Bhatia, A.*, Preiss, A.*, et al. (2025). Effect of nirmatrelvir/ritonavir (Paxlovid) on hospitalization among adults with COVID-19: An electronic health record-based target trial emulation from N3C. *PLOS Medicine*, 22(1), e1004493.
<https://doi.org/10.1371/journal.pmed.1004493>

Hadley, E., Yoo, Y. J., Patel, S., Zhou, A., Laraway, B., Wong, R., Preiss, A., et al. (2024). Insights from an N3C RECOVER EHR-based cohort study characterizing SARS-CoV-2 reinfections and Long COVID. *Communications Medicine*, 4(1), 1–12.
<https://doi.org/10.1038/s43856-024-00539-2>

Preiss, A.*, Bhatia, A.*, et al. (2024). Effect of Paxlovid Treatment During Acute COVID-19 on Long COVID Onset: An EHR-Based Target Trial Emulation from the N3C and RECOVER Consortia (p. 2024.01.20.24301525). *medRxiv*. (Under review at *PLOS Medicine*.)
<https://doi.org/10.1101/2024.01.20.24301525>

Preiss, A., et al. (2024). Evaluation of Text Cluster Naming with Generative Large Language Models. *Journal of Data Science*, 22(3), 376–392. <https://doi.org/10.6339/24-JDS1149>

Brannock, M. D., Chew, R. F., Preiss, A., et al. (2023). Long COVID risk and pre-COVID vaccination in an EHR-based cohort study from the RECOVER program. *Nature Communications*, 14(1), 2914. <https://doi.org/10.1038/s41467-023-38388-7>

Jones, K., Hadley, E., Preiss, A., et al. (2022). Estimate of undetected severe acute respiratory coronavirus virus 2 (SARS-CoV-2) infection in acute-care hospital settings using an individual-based microsimulation model. *Infection Control and Hospital Epidemiology*, 1–10. <https://doi.org/10.1017/ice.2022.174>

Pepper, J. K., Zitney, L. V., Preiss, A., et al. (2022). Can social media monitoring help identify the next EVALI? An examination of Reddit posts about vitamin E acetate and Dank Vapes. *Drug and Alcohol Dependence*, 230, 109193.
<https://doi.org/10.1016/j.drugalcdep.2021.109193>

Preiss, A., Baumgartner, P., Edlund, M. J., & Bobashev, G. V. (2022). Using Named Entity Recognition to Identify Substances Used in the Self-medication of Opioid Withdrawal: Natural Language Processing Study of Reddit Data. *JMIR Formative Research*, 6(3), e33919.
<https://doi.org/10.2196/33919>

Preiss, A., Berghammer, A., & Bobashev, G. (2022). Virtual Opioid User: Reproducing Opioid Use Phenomena with a Control Theory Model. *2022 Winter Simulation Conference (WSC)*, 1140–1151. <https://doi.org/10.1109/WSC57314.2022.10015450>

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Preiss, A., et al. (2022). Incorporation of near-real-time hospital occupancy data to improve hospitalization forecast accuracy during the COVID-19 pandemic. *Infectious Disease Modelling*, 7(1), 277–285. <https://doi.org/10.1016/j.idm.2022.01.003>

Waldrop, A. M., Cheadle, J. B., Bradford, K., Preiss, A., et al. (2022). Dug: A Semantic Search Engine Leveraging Peer-Reviewed Knowledge to Query Biomedical Data Repositories. *Bioinformatics* (Oxford, England), btac284. <https://doi.org/10.1093/bioinformatics/btac284>

Endres-Dighe, S., Jones, K., Hadley, E., Preiss, A., et al. (2021). Lessons learned from the rapid development of a statewide simulation model for predicting COVID-19's impact on healthcare resources and capacity. *PloS One*, 16(11), e0260310. <https://doi.org/10.1371/journal.pone.0260310>

Khoury, D., Preiss, A., et al. (2021). Increases in Naloxone Administrations by Emergency Medical Services Providers During the COVID-19 Pandemic: Retrospective Time Series Study. *JMIR Public Health and Surveillance*, 7(5), e29298. <https://doi.org/10.2196/29298>

Perkins, R. B., Foley, S., Hassan, A., Jansen, E., Preiss, A., et al. (2021). Impact of a Multilevel Quality Improvement Intervention Using National Partnerships on Human Papillomavirus Vaccination Rates. *Academic Pediatrics*, 21(7), 1134–1141. <https://doi.org/10.1016/j.acap.2021.05.018>

Askelson, N., Ryan, G., Seegmiller, L., Preiss, A., & Comstock, S. (2020). Intersectoral cooperation to increase HPV vaccine coverage: An innovative collaboration between Managed Care Organizations and state-level stakeholders. *Human Vaccines & Immunotherapeutics*, 16(6), 1385–1391. <https://doi.org/10.1080/21645515.2019.1694814>

Escoffery, C., Riehman, K., Watson, L., Priess, A., et al. (2019). Facilitators and Barriers to the Implementation of the HPV VACs (Vaccinate Adolescents Against Cancers) Program: A Consolidated Framework for Implementation Research Analysis. *Preventing Chronic Disease*, 16, E85. <https://doi.org/10.5888/pcd16.180406>

Fedewa, S. A., Preiss, A., et al. (2018). Reaching 80% human papillomavirus vaccination prevalence by 2026: How many adolescents need to be vaccinated and what are their characteristics? *Cancer*, 124(24), 4720–4730. <https://doi.org/10.1002/cncr.31763>

Fisher-Borne, M., Preiss, A., et al. (2018). Early Outcomes of a Multilevel Human Papillomavirus Vaccination Pilot Intervention in Federally Qualified Health Centers. *Academic Pediatrics*, 18(2S), S79–S84. <https://doi.org/10.1016/j.acap.2017.11.001>

*equal contributions

PRESENTATIONS

Preiss, A., Long, M., Klein Warren, L., Navarro, T. (2025, August). *Reducing risk from AI chatbots in public sector applications*. Accepted to present at the 2025 Joint Statistical Meetings, Nashville, TN.

Chew, R., Williams, M.R., Segarra, E.A., Preiss, A. (presenting), Konet, A., Oh, D., Boon, E., Savitsky, T.D. (2025, April). *So you want to share your autocoder model, but what about disclosure risk? Real-world applications of differentially private machine learning*. Accepted to present at the 2025 Federal Computer Assisted Survey Information Collection (FedCASIC) Workshops, virtual.

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Preiss, A., Baumgartner, P., and Berghammer, A. (2024, August). *Text Cluster Profiling using Generative Language Models and Vector Search*. Presented at the 2024 Joint Statistical Meetings, Portland, OR.

Preiss, A. (2023, July). *Data Science Responses to an Evolving Pandemic*. Presented at INFORMS Healthcare, Toronto (Invited).

Preiss, A. (2023, March). *Putting a COVID-19 Simulation Model into Production*. Presented at Elon University Health Analytics Day, Burlington, NC (Invited).

Preiss, A., Bobashev, G. (2022, November). *Virtual Opioid User: Simulating the Effects of Counterfeit Pill Prevalence with a Control Theory Model*. Presented at Lisbon Addictions, Lisbon, Portugal.

Preiss, A. (2022, October). *Social Media as an Early Data Source for Emerging Substance Use Trends*. Presented at the Federal Committee on Statistical Methodology, Washington, DC (Invited).

Preiss, A., Bobashev, G. (2022, June). *Increased Discussion of Smoking Fentanyl in Online Opioid Forums*. Presented at the Society for Epidemiological Research, Chicago.

Preiss, A. (2021, August). *Adapting the difference-in-difference technique to study change in opioid overdoses during the COVID-19 pandemic*. Presented at the 2021 Joint Statistical Meetings, virtual.

Preiss, A. (2020, November). *When a Dashboard Won't Do: Static Visualization of COVID-19 Data using Python*. Presented at the Government Advances in Statistical Programming Workshop, virtual.

Preiss, A., Elkins, W., Jacobs, S., Fisher-Borne, M. (2018, December). *Implementation strategies associated with HPV vaccination initiation rates among federally qualified health centers*. Presented at the 11th Annual Conference on the Science of Dissemination and Implementation in Health, Washington, DC.

Preiss, A., Parkington, G., Fisher-Borne, M. (2018, May). *The Texas HPV Coalition: Building a State-Level Coalition to Increase HPV Vaccination Rates*. Presented at the National Immunization Conference, Atlanta.