MICHELLE L. NOLAN

Watertown, MA 02472   603-770-0271   Nolan.MN@gmail.com

PROFESSIONAL EXPERIENCE

Director of Applied Science and Innovation   March 2024-present
Principal Epidemiologist   January 2022-March 2024
The Public Health Company, Remote
- Contributed to the design and development of a Retrieval-Augmented Generation (RAG) chatbot purpose built to accurately answer public health and biothreat related inquires and provide near-real time guidance on emerging public health threats
- Contribute to scalable products that use atypical data to enable real-time disease detection, risk assessment, and infectious disease forecasting
- Developed code to automate the identification and adjustment of epidemiologically unsound forecasts, reducing mean average error and reputational risk
- Served on a contact with Google Employee Health to develop software and provide subject matter expertise

Acting Director of Public Health Science and Epidemiologic Research   November 2020-January 2022
Senior Epidemiologist   January 2013-November 2020
New York City Department of Health and Mental Hygiene, New York, NY
- Led a team of epidemiologists to design and conduct analyses of substance use epidemiology using real-world data
- Developed a novel surveillance system to monitor substance use-related morbidity and mortality in real time and inform public health strategies and interventions
- Conducted surveillance of real-time drug-related morbidity, initiated outbreak investigations, recommended public health responses, conducted research, and evaluated the effectiveness of public health interventions
- Provided mentorship, training, technical assistance, and statistical consults to staff internally and at health departments across the country
- Reviewed the Bureau's public communications and written material to ensure scientific accuracy
- Designed dashboards and automated the associated data analyses, visualization, and distribution using R
- Published findings in the peer-reviewed literature and mentored junior epidemiologists to first author papers
- Communicated research findings, complex statistical concepts, and technical information to researchers and non-scientific audiences, including members of the press
- Automated the creation of publication-quality mortality surveillance tables using SAS, reducing the amount of time spent on data analysis and data checking from several months to one day

Teaching Assistant   January 2018-May 2018
Columbia University School of Public Health, New York, NY
- Held office hours, graded homework, and answered student questions about course content

Adjunct Professor   September 2015-December 2015
New York University, New York, NY
- Introduced first year public health graduate students to concepts in epidemiology

Program Support Assistant   October 2011-January 2013
ICAP, New York, NY
- Developed tracking tools to manage eleven CDC, NIH, and USAID grants in Tanzania, Kenya, and Ethiopia
- Helped plan and coordinate a conference in Malawi with over one hundred participants from thirteen countries

Teaching Assistant   August 2012-December 2012
Columbia University School of Public Health, New York, NY
- Led recitation sections and reinforced graduate student's understanding of epidemiology and biostatistics

Epidemiology Scholar   June 2012-August 2012
Los Angeles Department of Public Health, Los Angeles, CA
- Designed and conducted an analysis of the spatial distribution of homicide in Los Angeles County

EDUCATION

Ph.D., Epidemiology, Columbia University
M.P.H., Epidemiology, Columbia University
B.A., Political Science, Colgate University

PEER REVIEWED PUBLICATIONS

Nolan ML, Kunins HV, Paone D. Nowcasting drug overdose deaths in New York City using emergency department syndromic surveillance data and machine learning methods. Submitted.

Behrends CN, Trinidad AJ, **Nolan ML**, Dolatshahi J, Kingsepp A, Jordan AE, Alice E. Welch AE, Harocopos A, Shaw L, Green TC, Marshall BDL, Schackman BR. Expanded Naloxone Distribution by Opioid Overdose Prevention Programs to High Need Populations and Neighborhoods in New York City. Journal of Urban Health. In Press.

Zaidi I, Jordan AE, Jessell L, Dominguez Gomez L, Harocopos A, **Nolan ML**. Housing Status and COVID-19 Prevention Recommendations among People Who Use Drugs. COVID. 2023; 3(10):1612-1621.

Morgan J, Freibott, CE, Jalali A, Jeng P, Walley AW, Chatterjee A, Green TC, **Nolan ML**, Linas BP; Marshall BDL, Murphy SM. Increases in pharmacy and community distributed naloxone and the role in the opioid overdose epidemic in Massachusetts, Rhode Island, and New York City. Drug Alcohol Depend Rep. 2022;4.

Rivera AV, **Nolan ML**, Paone D, Carrillo SD, Braunstein, SL. Gaps in naloxone kit possession among people who inject drugs during the fentanyl wave of the opioid overdose epidemic in New York City, 2018. Subst Abus. 2022;43(1):1172-1179.

LaSane K, Dolatshahi J, Ko C, **Nolan ML**, Barrasse D, Libou M, Paone D. Management and staff reception to overdose prevention messaging and naloxone in nightlife venues in New York City. Health Education Journal. 2022;81(4):413-422.

Allen B, **Nolan ML**. Impact of a homeless encampment closure on crime complaints in the Bronx, New York City, 2017: Implications for municipal policy. Journal of Evidence-Based Social Work. Journal of Evidence-Based Social Work, 1-11.

Harocopos A, **Nolan ML**, Paone D. Implementing a Methadone Delivery System in New York City in response to COVID-19. Am J Public Health. 2021;111(12):2115-2117.

Mantha, S. **Nolan ML**, Harocopos A, Paone D. Racial disparities in criminal legal system involvement among New York City overdose decedents. Drug Alcohol Depend. 2021 Sep 1;226:108867.

Nolan ML, Harocopos A, Allen B, Paone D. Reformulation of oxycodone 80mg to prevent misuse: A cohort study assessing the impact of a supply-side intervention in New York City. Int J Drug Policy. 2020 Sep;83.

Nolan ML, Allen B, Paone D. Commentary on Hoots et al. (2019): The gap between evidence and policy calls into question the extent of a public health approach to the opioid overdose epidemic. Addiction. 2020;115(5):959-960.

Allen B, **Nolan ML**, Paone D. Underutilization of medications to treat opioid use disorder: What role does stigma play? Subst Abus. Subst Abus. 2019;40(4):459-465.

Behrends CN, Paone D, **Nolan ML**, et al. Estimated impact of supervised injection facilities on overdose fatalities and healthcare costs in New York City. J Subst Abuse Treat. 2019;106:79-88.

Nolan ML, Ehntholt A, Merrill T, Weiss D, Lall R, Paone D. Novel use of syndromic surveillance to monitor the impact of synthetic cannabinoid control measures on morbidity. Inj Epidemiol. 2019;6:33.

Bachuber M, Tuazon E, **Nolan ML**, Kunins H, Paone D. Impact of a prescription drug monitoring program use mandate on potentially problematic patterns of opioid analgesic prescriptions in New York City. Pharmacoepidemiol Drug Saf. Pharmacoepidemiol Drug Saf. 2019;28(5):734-739.

Allen, B. **Nolan ML**, Kunins H, Paone, D. Racial differences in opioid overdose in New York City, 2017. JAMA Intern Med. 2019;179(4):576–578

Nolan ML, Shamasunder S, Colon-berezin C, Kunins HV, Paone D. Increased Presence of Fentanyl in Cocaine-Involved Fatal Overdoses: Implications for Prevention. J Urban Health. 2019;96(1):49-54.

Colon-Berezin C, Nolan ML, Blachman-Forshay J, Paone, D. Fentanyl-Involved Overdose Deaths — New York City, 2000–2016. MMWR Morb Mortal Wkly Rep 2019;68:37–40.

Blachman-Forshay J, Nolan ML, McAteer J, Paone D. Estimating the risk of exposure to fentanyl in New York City: Testing drug residue in used syringes. Am J Public Health. 2018;108(12):1666-1668.

Huxley-Reicher Z, Maldjian L, Winkelstein E, Siegler A, Paone D, Tuazon E, Nolan ML, Jordan A, MacDonald R, Kunins HV. Witnessed overdoses and naloxone use among visitors to Rikers Island jails trained in overdose rescue. Addict Behav. 2018;86:73-78.

Nolan ML, Lall R, Kunins H, Paone D. Developing syndromic surveillance to monitor and respond to adverse health events related to psychoactive substance use: methods and applications. Public Health Rep. 2017;132(1_suppl):65S-72S.

Nolan ML, Allen B, Kunins H, Paone D. A public health approach to increased synthetic cannabinoid-related morbidity among New York City residents, 2014-2015. Int J Drug Policy. 2016 (34):101-103.

Jones JD, Nolan ML, Daver R, Comer SD, Paone D. Can Naloxone Be Used to Treat Synthetic Cannabinoid Overdose? Biological Psychiatry. 81(7):e51-e52.

Paone D, Tuazon E, Kattan J, Nolan ML, Bradley O'Brien D, Dowell D, Farley T, Kunins HV. Decrease in rate of opioid analgesic poisoning deaths (overdose) in Staten Island after introduction of public health interventions. MMWR Morb Mortal Wkly Rep. 2015 May 15;64(18):491-4.

Ridpath A, Driver CR, Nolan ML, Karpati A, Kass D, Paone D, Jakubowski A, Hoffman RS, Nelson LS, Kunins HV. Illnesses and deaths among persons attending an electronic dance-music festival - New York City, 2013. MMWR Morb Mortal Wkly Rep. 2014 Dec 19;63(50):1195-8.

OTHER PUBLICATIONS

Dominguez Gomez L, Jessell L, Zaidi I, Nolan ML, Harocopos A. Basic needs among people who use opioids in New York City during the COVID-19 pandemic. New York City Department of Health and Mental Hygiene: Epi Data Brief (131); February 2022.

Nolan ML, Jordan A, Bauman M, Askari M, Harocopos A. Unintentional Drug Poisoning (Overdose) Deaths in New York City in 2020. New York City Department of Health and Mental Hygiene: Epi Data Brief (129); November 2021.

Nolan ML, Tuazon E, Paone D. Unintentional Drug Poisoning (Overdose) Deaths in New York City in 2019. New York City Department of Health and Mental Hygiene: Epi Data Brief (122); December 2020.

Paone D, Allen B, Nolan ML. Considering Potential Unintended Consequences of Collecting Identified Patient Data to Guide Nonfatal Overdose Response. American Journal of Public Health. 2019;109(1):e11-e11.

Ko C, Mello E, Nolan ML, Tuazon E, Kunins H, Paone D. Cannabis use in New York City. New York City Department of Health and Mental Hygiene: Epi Data Brief (117); September 2019.

Nolan ML, Mantha S, Tuazon E, Paone D. Unintentional Drug Poisoning (Overdose) Deaths in New York City in 2018. New York City Department of Health and Mental Hygiene: Epi Data Brief (116); August 2019.

Nolan ML, Tuazon E, Blachman-Forshay J, Paone D. Unintentional Drug Poisoning (Overdose) Deaths in New York City, 2000–2017. New York City Department of Health and Mental Hygiene: Epi Data Brief (104); September 2018.

Paone D, **Nolan ML**, Tuazon E, Blachman-Forshay J. Unintentional Drug Poisoning (Overdose) Deaths in New York City, 2000–2016. New York City Department of Health and Mental Hygiene: Epi Data Brief (89); June 2017.

Paone D, **Nolan ML**, Tuazon E. Unintentional Drug Poisoning (Overdose) Deaths Involving Heroin and/or Fentanyl in New York City, 2000–2015. New York City Department of Health and Mental Hygiene: Epi Data Brief (74); August 2016.

Paone D, Tuazon E, **Nolan ML**, Mantha S. Unintentional Drug Poisoning (Overdose) Deaths Involving Heroin and/or Fentanyl in New York City, 2000–2015. New York City Department of Health and Mental Hygiene: Epi Data Brief (74); August 2016.

Nolan ML, Tuazon E, Mantha S, Blachman-Forshay J, Paone D. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City: Bronx, New York. New York City Department of Health and Mental Hygiene: Epi Data Brief (61); December 2015.

Mantha S, **Nolan ML**, Tuazon E, Murphy EA, Paone D. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City: Brooklyn, New York. New York City Department of Health and Mental Hygiene: Epi Data Brief (62); December 2015.

Motanya D, **Nolan ML**, Tuazon E, Mantha S, Tran T, Paone D. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City: Manhattan, New York. New York City Department of Health and Mental Hygiene: Epi Data Brief (63); December 2015.

Motanya D, **Nolan ML**, Tuazon E, Mantha S, Chin C, Paone D. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City: Queens, New York. New York City Department of Health and Mental Hygiene: Epi Data Brief (64); December 2015.

Tuazon E, **Nolan ML**, Mantha S, Frieder M, Paone D. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City: Staten Island, New York. New York City Department of Health and Mental Hygiene: Epi Data Brief (65); December 2015.

Paone D, Tuazon E, **Nolan ML**, Mantha S. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City, 2000–2014. New York City Department of Health and Mental Hygiene: Epi Data Brief (66); December 2015.

Nolan ML, Tuazon E, Paone D, Mantha S, Yim B. Cocaine Use in New York City: Morbidity and Mortality. New York City Department of Health and Mental Hygiene: Epi Data Brief (54); March 2015.

Heller D, Bradley O'Brien D, Harocopos A, Hreno J, Lerner J, McCoy EB, **Nolan M**, Phillips Lum P, Tuazon E, Parker C, Kunins H, Paone D. RxStat: Technical Assistance Manual. 2014. New York City.

Paone D, Tuazon E, Bradley O'Brien D, **Nolan M**. Unintentional Drug Poisoning (Overdose) Deaths Involving Opioids in New York City, 2000–2013. New York City Department of Health and Mental Hygiene: Epi Data Brief (50); August 2014.

Paone D, Tuazon E, **Nolan M**, Bradley O'Brien D. Unintentional Drug Poisoning (Overdose) Deaths in New York City, 2000-2012. New York City Department of Health and Mental Hygiene: Epi Data Brief (33); September 2013.

PRESENTATIONS

Nolan ML. (2021, November). Using syndromic surveillance to inform public health action: A behavioral health perspective. Closing keynote speaker at the 2021 Syndromic Surveillance Symposium. Virtual meeting.

Nolan ML. (2021, June). Nowcasting drug overdose deaths in New York City during the COVID-19 pandemic using emergency department syndromic surveillance data and machine learning methods. Presented at the 2021 Society for Epidemiologic Research Annual Meeting. Virtual meeting.

Nolan ML. (2019, June). Understanding the effect of syringe service programs on neighborhood crime complaint rates in New York City. Presented at the 2019 Society for Epidemiologic Research Annual Meeting. Minneapolis, Minnesota.

Nolan ML. (2018, June). Understanding the effect of a public health detailing campaign on initial exposure to opioid analgesic prescriptions. Presented at the 2018 Society for Epidemiologic Research Annual Meeting. Baltimore, Maryland.

Nolan ML. (2018, May). Public health applications for syndromic data. Presented at the 2018 Enhanced State Opioid Overdose Surveillance (ESOOS) Recipient meeting. Atlanta, Georgia.

Nolan ML. (2017, June). Public health applications for syndromic data. Presented at the 2017 Council of State and Territorial Epidemiologists Annual Conference. Boise, Idaho.

Nolan ML. (2017, June). Understanding the role of fentanyl in the overdose epidemic. Presented at the 2017 Council of State and Territorial Epidemiologists Annual Conference. Boise, Idaho.

Nolan ML. (2016, June). Syndromic Surveillance for Public Health Surveillance and Response. Presented at the 2016 Council of State and Territorial Epidemiologists Annual Conference. Anchorage, Alaska.

Nolan ML. (2016, June). Synthetic cannabinoids (K2): A case study in how criminalization impacts drug use and public health responses. Presented at the 2016 Council of State and Territorial Epidemiologists Annual Conference. Anchorage, Alaska.

Nolan ML. (2016, June). Synthetic cannabinoids (K2): A case study in how criminalization impacts drug use and public health responses. Presented at New Strategies for New Psychoactive Substances: A Public Health Approach. New York, New York.

Nolan ML. (2015, October). Multi-pronged approaches to reducing the health consequences of opioid use, New York City. Presented at the 2015 Northeast Epi Conference. New Brunswick, New Jersey.

Nolan ML. (2015, June). Increase in Synthetic Cannabinoid-Related Emergency Department Visits Detected By Syndromic Surveillance — New York City, 2014. Presented at the 2015 Council of State and Territorial Epidemiologists Annual Conference. Boston, Massachusetts.

Tuazon E, Paone D, **Nolan ML.** (2014, November). Unintentional drug poisoning deaths in New York City (NYC), opioid analgesic and heroin trends, 2000–2012. Presented at the 142nd American Public Health Association Annual Meeting. New Orleans, Louisiana.

Nolan, ML. (2014, April). A collaborative approach to surveillance of prescription drug misuse and related consequences. Presented at the National Drug Abuse Summit. Atlanta, Georgia.

Nolan, ML. (2014, February). Epidemiology of drug use. Presented at New York City Department of Health and Mental Hygiene Epi Grand Rounds.

Nolan ML, Morales D, Angelescou A, Pressley J. (2013, November). Use of a gun prevalence proxy measure to examine the spatial distribution of homicide in urban Los Angeles County, 2000-2009. Presented at the 141st American Public Health Association Annual Meeting. Boston, Massachusetts.

Nolan, ML. (2013, April). Epidemiology of opioid analgesic misuse, morbidity, and mortality, NYC. Presented at the National Drug Abuse Summit. Orlando, Florida.

INVITED TALKS

"Nowcasting Drug Overdose Deaths in New York City Using Emergency Department Syndromic Surveillance Data and Machine Learning Methods." NYU Center for Opioid Epidemiology and Policy Seminar Series. February 28, 2022.

"Drug overdose deaths in New York City during 2020." Drug Policy Alliance Seminar. January 19, 2022.

"New York City's Accelerating Overdose Epidemic: Help Put Data Into Action." Center for Drug Use and HIV Research AIDS Seminar. February 9, 2021.

"Alcohol: Prevalence, Treatment Options, and Policy." Guest lecture. Icahn School of Medicine at Mount Sinai. January 22, 2021.

"Substance Use and Responses During COVID-19: New York City Department of Health and Mental Hygiene." National Drug Early Warning System. May 18, 2020.

"Treating opioid use disorder during a pandemic." T32 Substance Abuse Seminar. Columbia University. April 14, 2020.

"Measuring the Opioid Epidemic: Surveillance to Inform and Evaluate a Public Health Approach." Guest lecture. Columbia University. December 9, 2019.

"Responses to the opioid overdose epidemic implemented by the New York City Department and Health and Mental Hygiene." The Center of Policy and Health Initiative on Opioids and Other Substances (PHIOS) Inaugural Event. Columbia University. October 17, 2019.

"Exposure to fentanyl in New York City: informing risk reduction practices." Drug Policy Alliance. June 10, 2019.

"Measuring the Opioid Epidemic: Surveillance to Inform and Evaluate a Public Health Approach." Guest lecture. Columbia University. December 10, 2018.

"Drug overdose prevention during a long epidemic." Guest lecture. Columbia University. December 10, 2018.

"The NYC Overdose Epidemic: from Data to Practice." Guest lecture. New York University. November 16, 2018.

"Overdose epidemic in NYC: demographic shifts and challenges, and current responses." Drug Policy Alliance. October 15, 2018.

"Cocaine, opioids, and race." Drug Policy Alliance. January 31, 2018.

"Principles and Practice of Injury Surveillance: Drug epidemiology in New York City." Guest lecture. Columbia University. April 10, 2017.

"Drug epidemiology in New York City: Trends and responses." Guest lecture. Columbia University. November 2016.

"Substance use public health surveillance in New York City." Guest lecture. Mount Sinai. January 2016.

HONORS AND AWARDS

Distinguished Service Award, New York City Department of Health and Mental Hygiene, December 11, 2020
First Place, Columbia Healthcare Case Competition, 2011
Most Innovative Solution, Columbia Healthcare Case Competition, 2011

GRANTS

CDC 5 NU17CE924978-02-00   September 2019 – August 2022

Strategies To Operationalize the Prevention of Overdose Deaths (STOP OD) $7,078,074
Harocopos (PI)
Role: Co-Investigator

SKILLS

Programming languages: R (proficient), SAS (proficient), Python (intermediate)

Domain knowledge: Applied Public Health, Epidemiology, Substance Use, Infectious Diseases, Policy, Public Health Surveillance, Scientific Communication, Observational Data, Machine Learning