Ayaz Hyder, Ph.D.

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Areas of Research Focus

Computational epidemiology, community-engaged research, reproductive health, food insecurity, opioid crisis, COVID-19

Education and Training

2013 – 2015	Research associate, Hla-Hla (Rosie) Thein in *Health Services Research*, Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
2011 – 2013	Postdoctoral associate, Michelle Bell & Kathleen Belanger in *Environmental Epidemiology*, School of Public Health and School of Forestry & Environmental Studies, Yale University, New Haven, Connecticut, US
2006 – 2012	Ph.D., Brian Leung and David Buckeridge in *Infectious Disease Modeling & Health Disparities*, Department of Biology, McGill University, Montreal, Quebec, Canada **Dissertation title:** *Validation and integration in spread models of influenza: Scientific insights and policy implications during influenza epidemics/pandemics*
2001 – 2005	B.Sc. (Honours) in Biology, McMaster University, Hamilton, Ontario, Canada

Employment

Current

2023 – Present	Associate Professor, Division of Environmental Health Sciences, College of Public Health, Ohio State University, Columbus, Ohio
2015 – 2023	Assistant Professor, Division of Environmental Health Sciences, College of Public Health, Ohio State University, Columbus, Ohio Affiliations: Core Faculty, Translational Data Analytics Institute; Affiliated Faculty at Infectious Disease Institute, Institute for Population Research, Initiative for Food and AgriCultural Transformation (InFACT), Center for Urban and Regional Analysis, and Center for Health Outcomes and Policy Evaluation Studies.

Previous

2015 – 2015	Lecturer, School of Environment, University of Toronto, Toronto, Ontario, Canada
2006 – 2010	Teaching assistant, Department of Biology, McGill University, Montreal, Quebec, Canada
2008 – 2009	Statistician assistant to Michael Zappittelli, Montreal Children's Hospital, Department of Pediatric Nephrology, Montreal, Quebec, Canada

2001 – 2005 Research assistant to Parminder Raina and Mark Loeb, McMaster University, Department of Clinical Epidemiology & Biostatistics, Hamilton, Ontario, Canada

Publications

Mentored students are underlined.

Peer-reviewed journal articles

Published

[1] **A Hyder**, C Graffagnino, G French, JA Maloney, B DeJesus, K Cowen, J Iversen, and S Bennett. "Findings from real-time monitoring and evaluation of the Vax Cash program in Columbus, Ohio". In: *Ohio Journal of Public Health* 5 (2 2023). DOI: https://doi.org/10.18061/ojph.v5i2.9105. URL: https://ojph.org/index.php/OJPH/article/view/9105.

[2] Y Li, H J Miller, **A Hyder**, and P Jia. "Understanding the spatiotemporal evolution of opioid overdose events using a regionalized sequence alignment analysis". In: *Social Science Medicine* 334 (2023), p. 116188. ISSN: 0277-9536. DOI: https://doi.org/10.1016/j.socscimed.2023.116188. URL: https://www.sciencedirect.com/science/article/pii/S0277953623005452.

[3] T P Tomich, C Hoy, M R Dimock, A D Hollander, P R Huber, **A Hyder**, M C Lange, C M Riggle, M T Roberts, and J F Quinn. "Why Do We Need Food Systems Informatics? Introduction to This Special Collection on Smart and Connected Regional Food Systems". In: *Sustainability* 15.8 (2023), p. 6556.

[4] **A Hyder**, A Blatt, AD Hollander, C Hoy, PR Huber, MC Lange, JF Quinn, CM Riggle, R Sloan, and TP Tomich. "Design and implementation of a workshop for evaluation of the role of power in shaping and solving challenges in a Smart Foodshed". In: *Sustainability* 14.5 (2022). DOI: 10.3390/su14052642.

[5] **A Hyder**, C Graffagnino, R Barbeau, L Dent, A Glover, A Jones, J McAdams, S Nawaz, GM Wontumi, and N Baryeh. "Addressing health equity goals for COVID-19 vaccination using integrated data and mapping tools: A collaboration between academia, public health, and healthcare systems in Columbus and Franklin County, Ohio". In: *Journal of Public Health Management and Practice* (2022). DOI: 10.1097/PHH.0000000000001550. URL: https://journals.lww.com/jphmp/Abstract/9900/Addressing_Health_Equity_Goals_for_COVID_19.17.aspx.

[6] **A Hyder**, M Smith, S Sealy-Jefferson, R Hood, S Chettri, A Dundon, A Underwood, D Bassett, and AH Norris. "Community based systems dynamics for reproductive health: A case study from urban Ohio". In: *Progress in Community Health Partnerships: Research, Education, and Action* 16 (2022), pp. 361–383. DOI: 10.1353/cpr.2022.0053. URL: https://muse.jhu.edu/article/864410.

[7] B Freisthler, **A Hyder**, KE Lancaster, EM Louden, and AM Rinderle. "Response to "COVID-19 economic impact payments and opioid overdose deaths"". In: *International Journal of Drug Policy* (2022), pp. 103713–103713. ISSN: 0955-3959. DOI: https://doi.org/10.1016/j.drugpo.2022.103713.

[8] D Kline, **A Hyder**, E Liu, M Rayo, S Malloy, and ED Root. "A Bayesian spatio-temporal nowcasting model for public health decision-making and surveillance". In: *American Journal of Epidemiology* 191.6 (2022), pp. 1107–1115. ISSN: 0002-9262. DOI: 10.1093/aje/kwac034. URL: https://doi.org/10.1093/aje/kwac034.

[9] K Koh, **A Hyder**, Y Karale, and MNK Boulos. "Big geospatial data or geospatial big data? A systematic narrative review on the use of spatial data infrastructures for big geospatial sensing data in public health". In: *Remote Sensing* 14.13 (2022). ISSN: 2072-4292. DOI: 10.3390/rs14132996. URL: https://www.mdpi.com/2072-4292/14/13/2996.

[10] Y Li, HJ Miller, ED Root, **A Hyder**, and D Liu. "Understanding the role of urban social and physical environment in opioid overdose events using found geospatial data". In: *Health and Place* 75 (2022). DOI: 10.1016/j.healthplace.2022.102792.

[11] **A Hyder** and KS Barnett. "Low birth weight and preterm birth among Arab-American women in Ohio". In: *Maternal and Child Health Journal* 25.4 (2021), pp. 574–583. DOI: 10.1007/s10995-020-03095-y.

[12] **A Hyder**, J Lee, A Dundon, LT Southerland, D All, G Hammond, and HJ Miller. "Opioid treatment deserts: Concept development and application in a US Midwestern urban county". In: *PLoS ONE* 16.5 (2021). DOI: 10.1371/journal.pone.0250324.

[13] **A Hyder**, A Trinh, P Padmanabhan, J Marschhausen, A Wu, A Evans, R Iyer, and A Jones. "COVID-19 surveillance for local decision making: An academic, school district, and public health collaboration". In: *Public Health Reports* 136.4 (2021), pp. 403–412. DOI: 10.1177/00333549211018203.

[14] E Beaulieu, C DiGennaro, E Stringfellow, A Connolly, A Hamilton, **A Hyder**, M Cerdá, KM Keyes, and MS Jalali. "Economic evaluation in opioid modeling: Systematic review". In: *Value in Health* 24.2 (2021), pp. 158–173. DOI: 10.1016/j.jval.2020.07.013.

[15] M Cerdá, MS Jalali, AD Hamilton, C Digennaro, **A Hyder**, J Santaella-Tenorio, N Kaur, C Wang, and KM Keyes. "A systematic review of simulation models to track and address the opioid crisis". In: *Epidemiologic Reviews* 43.1 (2021), pp. 147–165. DOI: 10.1093/epirev/mxab013.

[16] **A Hyder**. "Teaching systems science to public health professionals". In: *Public Health* 181 (2020), pp. 119–121. DOI: 10.1016/j.puhe.2019.12.013.

[17] **A Hyder** and AA May. "Translational data analytics in exposure science and environmental health: A citizen science approach with high school students". In: *Environmental Health* 19.1 (2020). DOI: 10.1186/s12940-020-00627-5.

[18] AP Aldridge, C Barbosa, JA Barocas, JL Bush, J Chhatwal, KJ Harlow, **A Hyder**, BP Linas, KE McCollister, JR Morgan, SM Murphy, C Savitzky, BR Schackman, EE Seiber, L E Starbird, J Villani, and GA Zarkin. "Health economic design for cost, cost-effectiveness and simulation analyses in the HEALing Communities Study". In: *Drug and Alcohol Dependence* 217 (2020). DOI: 10.1016/j.drugalcdep.2020.108336.

[19] AD Hollander, C Hoy, PR Huber, **A Hyder**, MC Lange, A Latham, JF Quinn, CM Riggle, and TP Tomich. "Toward smart foodsheds: Using stakeholder engagement to improve informatics frameworks for regional food systems". In: *Annals of the American Association of Geographers* 110.2 (2020), pp. 535–546. DOI: 10.1080/24694452.2019.1662764.

[20] K Koh, ML Kaiser, G Sweeney, K Samadi, and **A Hyder**. "Explaining racial inequality in food security in Columbus, Ohio: A blinder–oaxaca decomposition analysis". In: *International Journal of Environmental Research and Public Health* 17.15 (2020), pp. 1–15. DOI: 10.3390/ijerph17155488.

[21] PT Jensen, K Koh, RE Cash, SP Ardoin, and **A Hyder**. "Inpatient mortality in transition-aged youth with rheumatic disease: An analysis of the National Inpatient Sample". In: *Pediatric Rheumatology* 18.1 (2020). DOI: 10.1186/s12969-020-0416-4.

[22] SL Walsh et al. "The HEALing (Helping to End Addiction Long-term SM) Communities Study: Protocol for a cluster randomized trial at the community level to reduce opioid overdose deaths through implementation of an integrated set of evidence-based practices". In: *Drug and Alcohol Dependence* 217 (2020), pp. 108335–108335. DOI: 10.1016/j.drugalcdep.2020.108335.

[23] Y Li, **A Hyder**, LT Southerland, G Hammond, A Porr, and HJ Miller. "311 service requests as indicators of neighborhood distress and opioid use disorder". In: *Scientific Reports* 10.1 (2020). DOI: 10.1038/s41598-020-76685-z.

[24] K Koh, R Reno, and **A Hyder**. "Examining disparities in food accessibility among households in Columbus, Ohio: An agent-based model". In: *Food Security* 11.2 (2019), pp. 317–331. DOI: 10.1007/s12571-019-00900-7.

[25] K Koh, R Reno, and **A Hyder**. "Designing an agent-based model using group model building: Application to food insecurity patterns in a U.S. Midwestern metropolitan city". In: *Journal of Urban Health* 95.2 (2018), pp. 278–289. DOI: 10.1007/s11524-018-0230-1.

[26] R Reno and **A Hyder**. "The evidence base for social determinants of health as risk factors for infant mortality: A systematic scoping review". In: *Journal of Health Care for the Poor and Underserved* 29.4 (2018), pp. 1209–1239. DOI: 10.1353/hpu.2018.0091.

[27] N Hosseinichimeh, R MacDonald, **A Hyder**, A Ebrahimvandi, L Porter, R Reno, J Maurer, DL Andersen, G Richardson, J Hawley, and DF Andersen. "Group model building techniques for rapid elicitation of parameter values, effect sizes, and data sources". In: *System Dynamics Review* 33.1 (2017), pp. 71–84. DOI: 10.1002/sdr.1575.

[28] R Milwid, A Steriu, J Arino, J Heffernan, **A Hyder**, D Schanzer, E Gardner, M Haworth-Brockman, H Isfeld-Kiely, JM Langley, and SM Moghadas. "Toward standardizing a lexicon of infectious disease modeling terms". In: *Frontiers in Public Health* 4 (2016). DOI: 10.3389/FPUBH.2016.00213.

[29] **A Hyder** and B Leung. "Social deprivation and burden of influenza: Testing hypotheses and gaining insights from a simulation model for the spread of influenza". In: *Epidemics* 11 (2015), pp. 71–79. DOI: 10.1016/j.epidem.2015.03.004.

[30] Y Qiao, **A Hyder**, SJ Bae, W Zarin, TJ O'Neill, NE Marcon, L Stein, and HH Thein. "Surveillance in patients with Barrett's Esophagus for early detection of Esophageal Adenocarcinoma: A systematic review and meta-analysis". In: *Clinical and Translational Gastroenterology* 6 (2015). DOI: 10.1038/ctg.2015.58.

[31] **A Hyder**, HJ Lee, K Ebisu, P Koutrakis, K Belanger, and ML Bell. "PM2.5 exposure and birth outcomes: use of satellite- and monitor-based data". In: *Epidemiology* 25.1 (2014), pp. 58–67. DOI: 10.1097/EDE.0000000000000027.

[32] **A Hyder**, DL Buckeridge, and B Leung. "Predictive validation of an influenza spread model". In: *PLoS ONE* 8.6 (2013). DOI: 10.1371/journal.pone.0065459.

[33] O Alkandari, KA Eddington, **A Hyder**, F Gauvin, T Ducruet, R Gottesman, V Phan, and M Zappitelli. "Acute kidney injury is an independent risk factor for pediatric intensive care unit mortality, longer length of stay and prolonged mechanical ventilation in critically ill children: A two-center retrospective cohort study". In: *Critical Care* 15.3 (2011). DOI: 10.1186/cc10269.

[34] M Zappitelli, BS Moffett, **A Hyder**, and SL Goldstein. "Acute kidney injury in non-critically ill children treated with aminoglycoside antibiotics in a tertiary healthcare centre: A retrospective cohort study". In: *Nephrology Dialysis Transplantation* 26.1 (2011), pp. 144–150. DOI: 10.1093/ndt/gfq375.

[35] M Zappitelli, P-L Bernier, RS Saczkowski, CI Tchervenkov, R Gottesman, A Dancea, **A Hyder**, and O Alkandari. "A small post-operative rise in serum creatinine predicts acute kidney injury in children undergoing cardiac surgery". In: *Kidney International* 76.8 (2009), pp. 885–892. DOI: 10.1038/ki.2009.270.

[36] **A Hyder**, B Leung, and Z Miao. "Integrating data, biology, and decision models for invasive species management: Application to leafy spurge (Euphorbia esula)". In: *Ecology and Society* 13.2 (2008). DOI: 10.5751/ES-02485-130212.

Peer-reviewed conference proceedings

[1] G Bajaj, U Kursuncu, M Gaur, U Lokala, **A Hyder**, S Parthasarathy, and A Sheth. "Knowledge-driven drug-use named entity recognition with distant supervision". In: *Volume 290: MEDINFO 2021: One World, One Health – Global Partnership for Digital Innovation*. Studies in Health Technology and Informatics. Online: IOS Press, 2022, pp. 140–144. DOI: 10.3233/SHTI220048. URL: https://ebooks.iospress.nl/doi/10.3233/SHTI220048.

[2] R Thomson, H Bisgin, C Dancy, **A Hyder**, and M Hussain. "Social, Cultural, and Behavioral Modeling: 13th International Conference, SBP-BRiMS 2020, Washington, DC, USA, October 18–21, 2020, Proceedings". In: vol. 12268. Springer Nature, 2020.

[3] R Thomson, H Bisgin, C Dancy, and **A Hyder**. "Social, Cultural, and Behavioral Modeling: 12th International Conference, SBP-BRiMS 2019, Washington, DC, USA, July 9–12, 2019, Proceedings". In: vol. 11549. Springer, 2019.

[4] R Thomson, C Dancy, **A Hyder**, and H Bisgin. "Social, Cultural, and Behavioral Modeling: 11th International Conference, SBP-BRiMS 2018, Washington, DC, USA, July 10-13, 2018, Proceedings". In: vol. 10899. Springer, 2018.

[5] R Smith?, BY Lee, A Moustakas, A Zeigler, M Prague, R Santos, M Chung, R Gras, V Forbes, S Borg, T Comans, Y Ma, N Punt, W Jusko, L Brotz, and **A Hyder**. "Population modelling by examples ii". In: *Proceedings of the Summer Computer Simulation Conference*. 2016, pp. 1–8.

Reports

[1] F Anagbonu, L Frazier, A Trinh, and **A Hyder**. *Research memo on reasons for continued masking in schools*. Prepared upon request from Franklin County Public Health. 2022.

[2] A **Hyder**. *Reducing infant mortality in Ohio: Individuals, communities, systems, and interventions: All Babies Matter Simulation model for Infant Mortality or "ABM-Sim4IM"*. Agent-based modeling report that was not allowed to be submitted for peer-review by funder is available at this link. 2017. URL: https://www.healthpolicyohio.org/wp-content/uploads/2017/11/IMRP-Final-Report_6-30-2017_FINAL-003.pdf.

[3] HH Thein, M Gojovic, **A Hyder**, J Beca, and C Earle. *Canadian Partnership Against Cancer's cancer risk management model evaluation case study: Cost-effectiveness of expanded prevention and treatment programs for cervical cancer*. 2014.

Under review

[1] JW Adams, B Linas, A Aldridge, C Barbosa, JA Barocas, R Chandler, L Gilbert, **A Hyder**, A Reeves, PM Westgate, and E Oga. "Comparing predicted trends in drug overdose deaths before and following the start of the COVID-19 pandemic". In: *Submitted to American Journal of Public Health in September 2022* ().

[2] M Cerdá, AD Hamilton, **A Hyder**, C Rutherford, G Bobashev, JM Epstein, E Hatna, N Krawczyk, N El-Bassel, DJ Feaster, and KM Keyes. "Simulating the simultaneous impact of medication for opioid use disorder and naloxone on opioid overdose death in eight New York counties". In: *Submitted to Addiction in September 2022* ().

[3] J Lowrey, A Chandrasekaran, A Headings, and **A Hyder**. "Does fresh food improve health? An econometric analysis of a partnership model of care". In: *Submitted to Production and Operations Management in August 2022* ().

In-preparation

[1] **A Hyder**, L Frazier, F Anagbonu, K Moon, A Trinh, and S Nawaz. "Evaluation and lessons learned from the COVID-19 Analytics & Targeted Surveillance (CATS) System for School Districts: The experience from Central Ohio." In: *Manuscript in progress* ().

[2] **A Hyder**, R Hightower, M Smith, R Hood, S Chettri, A Underwood, and AH Norris. "What policies may eliminate racial inequities in infant mortality and other outcomes in the reproductive health system? A participatory modeling study". In: *Manuscript in progress* ().

[3] A **Hyder**, H Miller, L Southerland, A Trinh, K Harlow, and G Hammond. "Partnerships, development, and implementation of an opioid policy planning tool in Franklin County, Ohio." In: *Manuscript in progress* ().
→I conceptualized the study, performed the data analysis, collected the data, and am currently writing this manuscript(75% contribution).

Funding

*indicates a contract

Federal

2021 – 2026, *NSF, AI Institute* $19,999,998
ICICLE: Intelligent CyberInfrastructure with Computational Learning in the Environment
PI: DK Panda (Ohio State University)
Role: Co-Investigator

*2021 – 2024, *Centers for Disease Control and Prevention/Ohio Department of Health* $1,575,000
Equity Mapping Tool - Community Health Workers for COVID Response and Resilient Communities (Component C)
Role: PI

2021 – 2023, *Patient Centered Outcomes Research Institute* $199,974
Integrating PCOR into American Muslim Institutions for Informed COVID-19 Vaccine Decision-Making
Role: PI

2021 – 2022, *NSF, Convergence Accelerator Track F* $749,997
Actionable Sensemaking Tools for Curating and Authenticating Information in the Presence of Misinformation during Crises
PI: S Parthasarathy (Ohio State University)
Role: Co-PI

2019 – 2023, *NIH, National Institute of Drug Abuse* $62,397,575
Optimizing HEALing in Ohio (OHiO)
PI: R Jackson (Ohio State University)
Role: Co-Investigator

2018 – 2022, *NSF, Smart & Connected Communities* $666,496
Developing an Informational Infrastructure for Building Smart Regional Foodsheds
PI: T Tomich (University of California, Davis)
Role: Co-PI

2018 – 2021, *NSF, Big Data Spokes-Big Data Regional Innovation Spokes* $651,000
Big Data Hub: Spoke: Community-Driven Data Engineering for Opioid and Substance Abuse in the Rural Midwest
PI: R Machiraju (Ohio State University)
Role: Co-PI

2016 – 2019, *NSF, Division of Chemical, Bioengineering, Environmental and Transport Systems* $99,613
EAGER: Incorporating Citizen Science into Real-Time Sensor-Based Estimates of Traffic-Related Air Pollution Exposure
PI: A May (Ohio State University)
Role: Co-PI

Foundation

2018 – 2021, *Anonymous* $5,091,714
OPEN: The Ohio Policy Evaluation Network
PI: AH Norris (Ohio State University) and D Bessett (University of Cincinnati)
Role: Co-Investigator

Donor

2023 – 2024, *WF Fund* $100,000
Mental Health Needs of Muslim Students and Communities in Central Ohio A Data-Enabled, Community-Engaged, and Equity-Focused Approach
Role: PI

State or Local

*2023 – 2024, *Centers for Disease Control and Prevention* $251,000
Franklin County Overdose Data to Action (FOCAL)
Role: PI

*2021 – 2022, *Franklin County Public Health* $161,901
COVID-19 Analytics and Targeted Surveillance System for Schools
Role: PI

*2020 – 2022, *Centers for Disease Control and Prevention* $340,000
Franklin County Overdose Data to Action (FOCAL)
PI: K Harlow (Ohio State University)
Role: Co-PI

*2020 – 2021, *Ohio Department of Health* $801,378
State of Ohio's COVID-19 recovery response management activities
PI: E Seiber (Ohio State University)
Role: Co-Investigator

*2020 – 2021, *Educational Service Center of Central Ohio* $202,769
COVID-19 Analytics and Targeted Surveillance System for Schools
Role: PI

*2019 – 2020, *Centers for Disease Control and Prevention* $177,564
Franklin County Overdose Data to Action (FOCAL Map)
Role: PI

*2019 – 2020, *Dublin City Schools* $13,702
Citizen science for Smart Cities: Application to environmental health sensors and high school STEM education in Dublin, Ohio
Role: PI

*2016 – 2017, *Government Resource Center, State of Ohio* $541,833
Systems Modeling of Infant Mortality in Ohio, Infant Mortality Research Partnership
PI: J Hawley (Ohio State University)
Role: Co-PI

Seed grants (internal to Ohio State University)

2022 – 2023, *Office of Academic Affairs, Outreach and Engagement* $19,950
The Arab American Reproductive Health in Ohio Study
Role: PI

2021 – 2022, *Office of Academic Affairs, Outreach and Engagement* $10,000
Evaluation of the COVID-19 Analytics and Targeted Surveillance System for Schools project
Role: PI

2021 – 2022, *Office of Research* $20,000
Rapid Prototyping of Computational Workflows for COVID-19 Pandemic Response and Recovery
Role: PI

2020 – 2022, *Initiative for Food and AgriCultural Transformation* $34,767
Cultivating Responsibility: An Ecosystems Approach to Understanding the Role of Diet, Family, Community, Policy , and Cultural Issues in Land-Grant University Reparation Efforts with Native American Tribes
PI: S Gavazzi (Ohio State University)
Role: Co-PI

2018 – 2019, *Opioid Innovation Fund* $96,762
Franklin County Opioid Crisis Activity Levels (FOCAL Map)
PI: H Miller (Ohio State University)
Role: Co-PI

2016 – 2018, *Institute for Population Research* $53,795
Effect of lifetime intergenerational exposures to environmental toxicants and socio-demographic factors on prenatal and cognitive outcomes in children
Role: PI

2016 – 2017, *Initiative for Food and AgriCultural Transformation* $31,000
Transforming the Food Environment for Better Health: A Systems Approach
Role: PI

Invited talks

[1] **A Hyder**. "Developing and applying community engagement methods to support complex decision-making during a public health crisis". In: Conference on Complex Systems Palma de Mallorca, Palma, Spain, 2022.

[2] **A Hyder**. "Developing Tools for Building & Sustaining Trust in Health Information: The National Science Foundation's Convergence Accelerator Program". In: National Conference on Health Communication, Marketing and Media, Atlanta, Georgia, United States, 2022.

[3] **A Hyder**. "Disparity, Disease, and Data: What two years of monitoring, modeling, and mitigating COVID-19 taught us". In: Quantitative Methods Conference, Ohio State University, Columbus, Ohio, United States, 2022.

[4] **A Hyder**, H Panday, A Hussain, E Goetz, and E Sun H and Fosler-Lussier. "Community-based Systems Modeling and Conversational Artificial Intelligence". In: Natural Language Processing (NLP) and Simulation, Miami University, Oxford, Ohio, United States, 2022.

[5] **A Hyder**. "Frontiers in evidence-based policy making: COVID-19 and Schools". In: Workshop on Evidence-Based Policymaking for Applied Economists by Agricultural & Applied Economics Association (Online), 2021.

[6] **A Hyder**. "Enhancing Equity in Infectious Disease: Lessons from the Bench and Between Disciplines." In: IDI Viruses & Emerging Pathogens Weekly Seminar (Online), 2020.

[7] **A Hyder**. "Integrating Public Health and Social Work through Translational Data Analytics: Examples from Infant Mortality & Food Insecurity." In: College of Social Work Research Day. College of Social Work, Ohio State University, Columbus, Ohio, United States, 2020.

[8] **A Hyder**. "Models, Data, Sensing, and "Smart" to Solve Public Health Crisis (COVID-19 and Opioids)." In: Networking Technology and Systems (NeTS) First Call to Arms Community Workshop (Online), 2020.

[9] **A Hyder**. "Models, Data, Sensing, and "Smart" to Solve Public Health Crisis (COVID-19)." In: Departmental Colloquium, Mathematics, Arizona State University (Online), 2020.

[10] **A Hyder**. "Examining disparities in food accessibility among households in Columbus Ohio: An agent-based model." In: Nutrition and Obesity, Concurrent Session, Society for Epidemiologic Research. Minneapolis, Minnesota, United States, 2019.

[11] **A Hyder** and A. May. "Smart Sensors for Smart Cities: Two Examples of Multi-Sector Collaborations in Central Ohio." In: SuccessBound Central Ohio Conference. Columbus, Ohio, United States, 2018.

[12] **A Hyder**. "Agent-based modeling: Theory and Application." In: Research Methods Festival, Ohio State University. Columbus, Ohio, United States, 2017.

[13] **A Hyder**. "Public Health + Cyber-Physical Systems: Examples from Pregnancy, Food Insecurity, and Opioid Epidemic". In: Panel on Challenges and Opportunities for Bringing Smart Services to Underserved Urban Communities. Cyber-Physical Systems Principal Investigators' Meeting, National Science Foundation. Washington D.C., United States, 2017.

[14] **A Hyder**, R. Machiraju, and A. Arora. "Putting the Smarts in Smart Columbus: Data Ecosystems for Smart and Healthy Communities". In: Midwest Big Data Hub All-Hands Meeting. Omaha, Nebraska, Unites States, 2017.

[15] **A Hyder**. "Complex Systems Models for Environmental Epidemiology: Application to Childhood Asthma." In: Environmental Health Seminar Series, Cincinnati Children's Hospital Medical Center. Cincinnati, Ohio, United States, 2016.

[16] **A Hyder**. "Complex Systems Models in Epidemiology: Past, Present and Future." In: OSU-Center for Excellence in Regulatory Tobacco Science Seminar Series. Columbus, Ohio, United States, 2016.

[17] **A Hyder**. "Integrating Public Health, Healthcare and Policy using Translational Data Analytics: Examples from Infant Mortality, Food Insecurity and Pediatric Asthma." In: Glen Colloquium Series. Glen College of Public Affairs, Ohio State University, Columbus, Ohio, United States, 2016.

[18] **A Hyder**. "Transforming the Food Environment for Better Health: A Systems Approach (using Translational Data Analytics)." In: IC-FOODS Conference. Davis, California, United States, 2016.

[19] **A Hyder**, HJ Lee, K Ebisu, P Koutrakis, ML Bell, and K Belanger. "Does the Data Source of Exposure Assessment (Land-Based Monitors vs Satellite) Modify the Effect of PM2.5 Exposure on Birth Outcomes?" In: Annual International Society of Environmental Epidemiology Conference. Columbia, South Carolina, United States, 2016.

[20] **A Hyder**. "Complex Systems Models for Better Decisions and Better Health: Examples from Influenza and Population Health". In: Disease Ecology and Computer Modeling Laboratory Seminar Series, Department of Veterinary Preventive Medicine, Ohio State University, Columbus, Ohio, United States, 2015.

[21] **A Hyder**. "Complex Systems Models for Better Decisions and Better Health: Examples from Influenza, Cancer and Asthma." In: Data Mining Research Lab Seminar Series, Department of Computer Science and Engineering, Ohio State University, Columbus, Ohio, United States, 2015.

[22] **A Hyder**. "A Caution on "Big" Data and Prediction in Epidemiology and Public Health Decision-Making." In: Big Data and Health Policy Workshop, Fields Institute, Toronto, Ontario, Canada, 2014.

[23] **A Hyder** and B Leung. "Integrating Predictors of Health Disparities with a Complex Model of Influenza Spread." In: Dynamic of Preparedness: A Public Health Systems Conference. MIDAS National Center of Excellence. University of Pittsburgh, Pittsburgh, Pennsylvania, United States, 2012.

[24] **A Hyder**, M Jeanmougin, and B Leung. "The role of scale and heterogeneity on disease spread among vulnerable populations during an epidemic." In: Center for Disease Modeling Group Meeting. York University, Toronto, Ontario, Canada, 2011.

[25] **A Hyder**, M Jeanmougin, and B Leung. "The role of scale and heterogeneity on disease spread among vulnerable populations during an epidemic." In: Epistemology of Modeling and Simulation, MIDAS National Center of Excellence, University of Pittsburgh, United States, 2011.

[26] **A Hyder**, B Leung, A Verma, and D Buckeridge. "Prediction and validation of influenza spread models." In: MITACS Annual Conference, University of New Brunswick, Fredericton, New Brunswick, Canada, 2009.

Poster presentations

[1] **A Hyder**. "Public funding for genomics and the return on investment: A public health perspective." In: Society for Epidemiologic Research, Minneapolis, Minnesota, United States, 2019.

[2] **A Hyder**, J Lee, A Dundon, LT Southerland, D All, G Hammond, and HJ Miller. "Recovery Deserts: Identifying neighborhoods underserved by opioid treatment and recovery services." In: Poster presentation at Society for Epidemiologic Research, Minneapolis, Minnesota, United States, 2019.

[3] **A Hyder**, HJ Lee, K Ebisu, P Koutrakis, ML Bell, and K Belanger. "Integrating air pollution exposure in a mechanistic agent-based model of asthma: Model development and application to childhood asthma outcomes." In: International Society for Epidemiological Research, Rome, Italy, 2016.

[4] **A Hyder**, HH Thein, and M Urquia. "Effect of residential mobility and immigrant status on birth outcomes: A retrospective study of pregnant women in Ontario from 2000-2012." In: Society for Epidemiological Research and Society for Perinatal Epidemiological Research, Miami, Florida, United States, 2016.

[5] **A Hyder**, N Marcon, L Stein, T Godfrey, and HH Thein. "Cost-effectiveness of sponge-based surveillance with genetic testing for early diagnosis of esophageal adenocarcinoma." In: OICR/CCO Health Services Research Program's 7th Annual Meeting, Toronto, Ontario, Canada, 2015.

[6] **A Hyder**, L Stein, and HH Thein. "Development and validation of a microsimulation model to evaluate the cost-effectiveness of innovative screening and surveillance for early detection of esophageal adenocarcinoma." In: Society for Medical Decision Making North America Meeting, Miami, Florida, United States, 2015.

Awards and Recognition

- Community Empowerment Award, 2021, CAIR-OH
- Runner-up poster at Session 3, Society for Epidemiologic Research Annual Conference in 2019

Teaching & Mentoring

Courses taught

** indicates new courses that I have developed*
*** indicates course that I developed and taught at the Summer Program in Population Health, Center for Public Health Practice, College of Public Health, Ohio State University*

- Current Issues in Global Environmental Health (3000 level course, Spring and Fall 2017, 2018, 2019, Spring 2020)
- Public Health Data Analytics I (5000 level course, Spring and Fall 2019, Spring 2020, 2021, 2022)*
- Public Health Data Analytics II (7000 level course, Spring 2020, 2021)*
- Environmental Epidemiology (7000 level course, Spring 2018, 2020, 2021, 2022)*
- Data for Action: Examples from Pandemics, Epidemics, and Other Public Health Crises**
- Untangling Complexity in Population Health: A Systems Science Approach to Addressing Infant Mortality in Ohio**

Student advising

Postdoctoral

2021 – Present	Yogita Karale
2019 – 2020	Mikaela Smith (current: Postdoctoral research, College of Public Health, Ohio State University)
2016 – 2017	Rebecca Reno (current: Senior Consultant-Evaluation, JSI—John Snow Inc.)
2016 – 2018	Peter Koh (current: Assistant Professor, Tenure Track, University of Hong Kong)

Doctoral

2021 – Present	Balaji Ramesh, Co-advisor
2019 – Present	Yuchen Li, Doctoral committee member, Department of Geography, College of Arts and Sciences
2019 – 2021	John Lowrey, Doctoral committee member, Department of Operations and Business Analytics, College of Business (current: Assistant Professor, Tenure Track, Northeastern University)
2019 – 2021	Omar Tahtamooni, Doctoral committee member, Environmental Health, University of Pittsburgh
2017 – 2017	Tyler Gorham, Doctoral committee member (current: Data analyst, Nationwide Children's Hospital)

Masters

2019 – 2020	Christopher Eisner, MSc Epidemiology, Academic advisor
2017 – 2019	Lottie Sinkula, MSc Epidemiology, Academic advisor
2017 – 2018	Paul Jensen, MPH Clinical Translational Science, Academic advisor
2017 – 2018	Willa DN Skeehan, MPH Epidemiology, Academic advisor

Undergraduate

2016 – 2016	Ayesh Butt, Research assistant
2017 – 2017	Zineb Habroune, Undergraduate volunteer
2017 – 2019	Jordan Amann, Undergraduate volunteer
2017 – 2019	Ashley Dundon, Research assistant
2019 – 2020	Faraz Shaikh, Undergraduate volunteer
2020 – 2020	Sana Lalani, Research assistant
2020 – 2020	Ruth Plante, Research assistant
2020 – 2021	Enaho Liu, Research assistant
2020 – 2021	Pranav Padamanabhan, Research assistant
2020 – 2021	Eman Eltobgy, Research assistant

2020 – Present	Net Zhang, Research assistant
2021 – 2021	Yousef Alish, Research assistant
2021 – Present	Ramy El-Assly, Research assistant
2021 – Present	Philip Oteng, Research assistant
2021 – Present	Kexin Cui, Research assistant

Service

Academic service

Ad-hoc reviewer

- American Journal of Preventive Medicine
- Annals of Internal Medicine
- Computational and Mathematical Organization Theory
- Ecology and Society
- Environmental Health Perspectives
- Epidemiology
- Injury Prevention
- International Journal of Environmental Research and Public Health
- Journal of Drug and Alcohol Dependence
- Journal of Public Health Management & Practice
- New England Journal of Medicine
- Obesity
- Oikos
- PLoS One
- Science
- Science of the Total Environment
- Social Science & Medicine
- Systems Science
- Theoretical Biology and Medical Modeling

Ad-hoc grant reviewer

2022	Centers for Disease Control and Prevention, Special Emphasis Panel (SEP) for CK22-008: Building Mathematical Modeling Workforce Capacity to Support Infectious Disease and Healthcare Research
2020	National Science Foundation, Food- and agriculture-focused proposal review panel for the Smart and Connected Communities (S&CC) program (*Invited but declined)*
2019	National Science Foundation, Smart and Connected Communities, Planning Grants Review Panel

Committee service

University

2022 – 2022	Search Advisory Committee - Vice Provost for Urban Research and Community Engagement (*invited but declined*)
2019 – 2019	Translational Data Analytics Institute, Faculty Director Search Committee
2019 – 2019	Research and Creative Expression Strategic Planning Committee, Office of Research

2018 – 2018	OSU Smart Campus Steering Committee, Office of Research

College

2017 – 2019	Bachelor's of Science in Public Health Committee, College of Public Health
2016 – 2017	Research Day Committee, College of Public Health

Service to Student Life

2022 – Present	Faculty Advisor, Muslim Student Association, Ohio State University
2019 – Present	Faculty Advisor, Buckeyes for Harm Reduction, Ohio State University
2019 – 2020	Faculty Advisor, Palestinian Women's Association, Ohio State University

Service to Community-based organizations

2022 – Present	Member, Board of Directors, Health Impact Ohio (formerly Healthcare Collaborative of Greater Columbus)
2019 – 2022	Member, Board of Directors, Supporting Ohioans throughout Addiction and Recovery (SOAR) Initiative
2019 – 2020	Chair, MORPC Air Quality Sensor Network subgroup, Mid-Ohio Regional Planning Commission
2018 – 2018	Member, Steering Committee on Social Determinants of Health for Infant Mortality, Health Policy Institute of Ohio
2017 – 2018	Member, Data Use Cases Working Group, Smart Columbus, City of Columbus
2017 – 2017	Member, Steering Committee on State Health Improvement Plan: Maternal and Child Health Working Group, Health Policy Institute of Ohio

COVID-19 related service

2021 – 2022	Developed and implemented the Equity Mapping Tool, which is used by local health departments and healthcare systems for identifying potential pop-up/mobile COVID-19 vaccine sites.
2020 – 2022	Advised, developed, and presented COVID-19 data, mitigation strategies and surveillance strategies for multiple Central Ohio school districts.
2020 – 2022	Participated in COVID-19 Medical Advisory Board (for Upper Arlington City School District, Hilliard City School District, Dublin City School District).
2020 – 2021	Advised Ohio COVID-19 Minority Health Task Force on data curation, analysis, and data interpretation.
2020 – 2022	Advisor to several Ohio mosques and cultural centers on pandemic preparedness and mitigation strategies.

2020 – 2020	Developed simulation models for Ohio Department of Health on COVID-19 pandemic preparedness and recovery efforts as part of the OSU COVID-19 Modeling Team.
2020 – 2020	Assisted Columbus Public Health and Franklin County Public Health with COVID-19 simulation modeling to answer "what if?" questions about school re-opening in 2020.
2020 – 2020	Assembled the Wellbeing in the Time of Coronavirus Toolkit (link). As of May 8, 2020, 26,000 were reached via social media list serves and it was viewed 5,607 times on the Family and Youth Institute (FYI) website.

Professional development

2016 – 2018	Society for Pediatric and Perinatal Epidemiologic Research (SPER)
2015 – Present	Society for Epidemiological Research (SER)
2015 – 2017	International Society for Environmental Epidemiology (ISEE)
2013 – 2015	Society for Medical Decision Making