

## AYAZ HYDER

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### EDUCATION/EXPERIENCE

2015	Public Health, University of Toronto	Research Associate
2013	Public Health, Yale University	Postdoctoral Researcher
2012	Infectious Disease Modeling, McGill University	Ph.D.
2005	Biology, McMaster University	B.Sc.

### ACADEMIC APPOINTMENT

2015	Assistant Professor, Division of Environmental Health Sciences, College of Public Health and Core Faculty, Translational Data Analytics Institute, The Ohio State University
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### Research Statement<sup>1</sup>

I conduct research on data analytics methods, computational tools and models for public health practice and impact. I empower public health departments (state and local) with the methods and tools they have asked for to overcome current and future public health challenges. Ultimately, my research aims to speed up knowledge to action processes in public health and to enable public health systems to act based on what is coming rather than wait till it is here—a proactive public health system. A novel theme of my research is developing strategies for community-centered modeling where models/methods/tools are co-created, personalized and made relevant to community needs, and generalizable and scalable to other communities. My research program is novel and groundbreaking because by bringing together those who develop the models/tools/methods (e.g., modelers and analysts) and those who use them (e.g., applied epidemiologists, health commissioners, healthcare system leaders) the solutions researched and engineered in my lab are scalable, practical, and responsive.

I work on public health challenges facing Ohioans, such as reproductive health, opioid addiction, and food insecurity. My recent pivot to analytics, surveillance, and modeling in service of local/state health departments and school districts in response to the COVID-19 pandemic reinforces the urgent need in public health sciences for researching and translating data analytics methods and models for public health practice and impact. I use a wide range of methods in my research group, such as community-based participatory modeling (e.g., Group Model Building workshops), systems thinking and modeling (e.g., agent-based models and system dynamics models), and data analytics methods and tools (e.g., spatial analytics, data commons, ontologies, sentiment analysis, and interactive dashboards). My research on participatory modeling techniques and systems modeling in reproductive health ([1] in *Submitted* and [1] in *In preparation*), infant mortality ([15] in *Published* and [1] in *Reports*), opioid addiction ([3],[4] and [8] in *Published* and [2] in *In preparation*) and food insecurity ([11] and [13] in *Published*) has shown that when diverse stakeholders are brought together in a meaningful manner and models (conceptual or simulation) are co-created with stakeholders via academic-community partnerships then there is greater opportunity for working across disciplinary silos, breaking down barriers to data sharing and aligning organizational goals that improve multiple outcomes for vulnerable populations. My research on data analytics methods has provided key insights into individual and neighborhood-level drivers of racial and ethnic disparities in food access ([5] in *Published*), birth outcomes ([1] in *Published*), infant mortality ([12] in *Published*) and opioid addiction ([2] in

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<sup>1</sup> [X] in Y, refers to item X under publication type Y in the PUBLICATIONS section.

*Published*, [2] in *Submitted*) in Ohio. My research on translating knowledge to action in public health practice has demonstrated that: i) systems thinking and modeling approaches can be taught effectively to public health professionals ([9] in *Published*) and ii) multiple case studies focusing on multiple health outcomes and data across sectors of health ([10] and [14] in *Published*, [2-4] in *Submitted* and [1-2] in *In-preparation*) can strengthen the case for much-needed investments (e.g., infrastructure, tools and workforce training) in public health data analytics, which is a precursor to enabling a proactive public health system.

There have been several impacts of my research program. First, the evaluation of the FreshRx program (an innovative patient-centered healthcare intervention between PrimaryOne Health and Mid Ohio Food Collective) provided key metrics for the program's impact on health outcomes and cost savings. This information was used by key stakeholders to justify the continued investments in the FreshRx program. Second, community engagement in urban and rural Ohio communities that is coupled with data analytics has contributed to FOCAL Map (a web-based spatial analytics tools with use case-specific layers of data information) becoming the go-to source and aggregator of data on opioid overdose events for local decision-making and surveillance at Franklin County Public Health, Columbus Public Health and ADAMH Board of Franklin County. Third, co-created materials from group model building workshops related to reproductive health in Ohio are being used by ProMedica Health in Lucas County, OH and have been requested by others (Clark County, Youngstown) to guide their on-the-ground infant mortality work. Lastly, COVID-19-related research and service projects involving data analytics, data commons, modeling and surveillance: i) guided the State of Ohio's response to re-opening Ohio after the stay-at-home order in May 2020, ii) provided local data for local decision-making (e.g., changes in learning mode, Board approved plans for safe re-opening of schools) to the majority of Central Ohio school districts, including Columbus City Schools, iii) brought together COVID-19 data for data analytics courses at OSU and made the data available for other OSU researchers, and iv) developed and implemented the Equity Mapping Tool, which is used daily by local health departments and healthcare systems to identify, coordinate and site pop-up/mobile COVID-19 vaccine sites. Each of these evidence for impact demonstrate the timely need for data analytics methods, computational tools and models for public health practice and impact.

## PUBLICATIONS

### *Published*

1. **Hyder A**, Trinh A, Padmanabhan P, Marschhausen J, Wu A, Evans A, Iyer R, Jones A. COVID-19 Surveillance for Local Decision Making: An Academic, School District, and Public Health Collaboration. *Public Health Reports*. 2021 May 12:00333549211018203.
2. **Hyder A**, Lee J, Dundon A, Southerland LT, All D, Hammond G, Miller HJ. Opioid Treatment Deserts: Concept development and application in a US Midwestern urban county. *Plos one*. 2021 May 12;16(5):e0250324.
3. **Hyder A**, Barnett KS. Low Birth Weight and Preterm Birth Among Arab-American Women in Ohio. *Maternal and Child Health Journal*. 2020 Nov 27:1-0.
4. Li Y, **Hyder A**, Southerland LT, Hammond G, Porr A, Miller HJ. 311 service requests as indicators of neighborhood distress and opioid use disorder. *Scientific Reports*. 2020 Nov 11;10(1):1-1.
5. Aldridge AP, Barbosa C, Barocas JA, Bush JL, Chhatwal J, Harlow KJ, **Hyder A**, Linas BP, McCollister KE, Morgan JR, Murphy SM. Health economic design for evaluating cost, cost-effectiveness and simulation analyses in the HEALing Communities Study. *Drug and Alcohol Dependence*. 2020 Oct 3:108336.
6. Walsh S, El-Bassel N, Jackson R, Samet J, Aggarwal M, Aldridge A, Baker T, Barbosa C, Barocas J, Battaglia T, Beers D and The HEALing Communities Study Consortium. 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. *Drug and Alcohol Dependence*. 2020 Oct 17.
7. Koh K, Kaiser ML, Sweeney G, Samadi K, **Hyder A**. Explaining Racial Inequality in Food Security in Columbus, Ohio: A Blinder–Oaxaca Decomposition Analysis. *International Journal of Environmental Research and Public Health*. 2020 Jan;17(15):5488.
  8. **Hyder A**, May AA. Translational data analytics in exposure science and environmental health: a citizen science approach with high school students. *Environmental Health*. 2020 Dec;19(1):1-2.
  9. Jensen PT, Koh K, Cash RE, Ardoin SP, **Hyder A**. Inpatient mortality in transition-aged youth with rheumatic disease: an analysis of the National Inpatient Sample. *Pediatric Rheumatology*. 2020 Dec;18:1-8.
  10. Beaulieu E, DiGennaro C, Stringfellow E, Connolly A, Hamilton A, **Hyder A**, Cerdá M, Keyes KM, Jalali MS. Economic Evaluation in Opioid Modeling: Systematic Review. *Value in Health*. 2020 Oct 26.
  11. **Hyder A**. Teaching systems science to public health professionals. *Public Health*. 2020 Apr 1;181:119-21.
  12. Hollander AD, Hoy C, Huber PR, **Hyder A**, Lange MC, Latham A, Quinn JF, Riggle CM, Tomich TP. Toward Smart Foodsheds: Using Stakeholder Engagement to Improve Informatics Frameworks for Regional Food Systems. *Annals of the American Association of Geographers*. 2019 Oct 16;110(2):535-46.
  13. Koh K, Reno R, **Hyder A**. Examining disparities in food accessibility among households in Columbus, Ohio: an agent-based model. *Food Security*. 2019 Apr 15;11(2):317-31.
  14. Reno, R., and **Hyder A**. The Evidence Base for Social Determinants of Health as Risk Factors for Infant Mortality: A Systematic Scoping Review. *Journal of Health Care for the Poor and Underserved*. 2018 29 (4), 1188-1208
  15. Koh K, Reno R, **Hyder A**. Designing an agent-based model using group model building: Application to food insecurity patterns in a US Midwestern Metropolitan City. *Journal of Urban Health*. 2018 Apr 1;95(2):278-89.
  16. **Hyder A**. Public Funding for Genomics and the Return on Investment: A Public Health Perspective. *Perspectives in Biology and Medicine*. 2018;61(4):572-83.
  17. Hosseinichimeh N, MacDonald R, **Hyder A**, Ebrahimvandi A, Porter L, Reno R, Maurer J, Andersen DL, Richardson G, Hawley J, Andersen DF. Group model building techniques for rapid elicitation of parameter values, effect sizes, and data sources. *System Dynamics Review*. 2017 Jan;33(1):71-84.
  18. Milwid R, Steriu A, Arino J, Heffernan J, **Hyder A**, Schanzer D, Gardner E, Haworth-Brockman M, Isfeld-Kiely H, Langley JM, Moghadas SM. Toward standardizing a lexicon of infectious disease modeling terms. *Frontiers in Public Health*. 2016 Sep 28;4:213.
  19. Qiao Y, **Hyder A**, Bae SJ, Zarin W, O'Neill TJ, Marcon NE, Stein L, Thein HH. Surveillance in patients with Barrett's esophagus for early detection of esophageal adenocarcinoma: a systematic review and meta-analysis. *Clinical and Translational Gastroenterology*. 2015 Dec;6(12):e131.
  20. **Hyder A**, Leung B. Social deprivation and burden of influenza: Testing hypotheses and gaining insights from a simulation model for the spread of influenza. *Epidemics*. 2015 Jun 1;11:71-9.
  21. **Hyder A**, Lee, H.J., Ebisu, K., Koutrakis, P., Belanger, K., and M.L. Bell. 2014. PM<sub>2.5</sub> Exposure and Birth Outcomes: Use of Satellite- and Monitor-Based Data. *Epidemiology*. 25(1):58-67.
  22. **Hyder A**, Buckeridge DL, Leung B. Predictive validation of an influenza spread model. *PLOS ONE*. 2013 Jun 3;8(6):e65459.
  23. Alkandari O, Eddington KA, **Hyder A**, Gauvin F, Ducruet T, Gottesman R, Phan V, Zappitelli M. 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. *Critical Care*. 2011 Jun 1;15(3):R146.

24. Zappitelli M, Moffett BS, **Hyder A**, Goldstein SL. Acute kidney injury in non-critically ill children treated with aminoglycoside antibiotics in a tertiary healthcare centre: a retrospective cohort study. *Nephrology Dialysis Transplantation*. 2011 Jan 1;26(1):144-50.
25. Zappitelli M, Bernier PL, Saczkowski RS, Tchervenkov CI, Gottesman R, Dancea A, **Hyder A**, Alkandari O. A small post-operative rise in serum creatinine predicts acute kidney injury in children undergoing cardiac surgery. *Kidney International*. 2009 Oct 2;76(8):885-92.
26. **Hyder A.**, B. Leung and Z. Miao. 2008. Integrating Data, Biology, and Decision Models for Invasive Species Management: Application to Leafy Spurge (*Euphorbia esula*). *Ecology and Society*. 13 (2): 12.

**Submitted**

1. **Hyder A**, Smith M, Sealy-Jefferson S, Hood R, Chettri S, Dundon A, Underwood A, Bassett D, Norris A. Community Based Systems Dynamics for Reproductive Health: A Case Study from Urban Ohio. (*Submitted to Progress in Community Health Partnerships: Research, Education, and Action*)
2. Lowrey J, Chandrasekaran A, Headings A, **Hyder A**. The effect of the ProduceRx program on healthcare quality-cost outcomes: a natural field experiment. (*Submitted, Management Science Operations Management*)
3. Kline D, **Hyder A**, Liu E, Malloy S, Rayo M, Root E. A Bayesian spatio-temporal nowcasting model for public health decision-making and surveillance. (*Submitted to American Journal of Epidemiology*)
4. Bajaj G, Kursuncu K, Gaur M, Lokala U, **Hyder A**, Parthasarathy A, Sheth A. Knowledge-driven domain-specific Named Entity Recognition with Distant Supervision. (*Submitted to 2021 International Semantic Web Conference*)

**In-preparation**

1. **Hyder A**, Hightower R, Smith M, Sealy-Jefferson S, Hood R, Chettri S, Dundon A, Underwood A, Bassett D, Norris A. A Policy Simulation Model for the Reproductive Health System in Urban Ohio.
2. **Hyder A**, Sloan R, Hollander AD, Hoy C, Huber PR, Lange MC, Blatt A, Quinn JF, Riggle CM, Tomich TP. Identifying the Role of Power Relationships in Shaping and Solving Challenges in the Foodshed: A Community-Based Participatory Modeling Approach.
3. **Hyder, A**, Salsberry, P Air pollution exposure assessment in the National Longitudinal Survey of Youth 1979: An exploratory analysis.
4. Chettri, S, Dundon, A, Smith, M, **Hyder, A** Sentiment analysis of social media reviews about Ohio-based abortion clinics.

Grants/Contracts	Number of publications aligned with grant/contract			
	Published	Submitted	In prep	Total
2019-2022, NIH, HEAling Community Study	3	1	1	5
2020-2021, ESCCO, COVID-19 Analytics and Targeted Surveillance for Schools	1			1
2018-2020, NSF, S&CC: Smart & Connected Communities	1		1	2

Grants/Contracts	Number of publications aligned with grant/contract			
	Published	Submitted	In prep	Total
2018-2020, OPEN: The Ohio Policy Evaluation Network, Anonymous (Foundation)		1	1	2
2016-2017, Infant Mortality Research Partnership, Government Resource Center, State of Ohio	1			1
2016-2017, Initiative for Food and AgriCultural Transformation Seed Grant	3			3
2018-2019, Opioid Innovation Fund (OSU Internal Seed Grant)	2			2
2016-2019, EAGER, NSF Div Chem, Bioeng, Environ, & Trnsp	1			1

### *Conference proceedings*

1. Thomson, R., Dancy, C., & Bisgin, H. & **Hyder, A.**(Eds.). 2019. Social, Cultural, and Behavioral Modeling: 12th International Conference, SBP-BRiMS 2019, Washington, DC, USA, July 10-12, 2018, Proceedings (Vol. 10899). Springer.
2. Thomson, R., Dancy, C., **Hyder, A.**, & Bisgin, H. (Eds.). 2018. Social, Cultural, and Behavioral Modeling: 11th International Conference, SBP-BRiMS 2018, Washington, DC, USA, July 10-13, 2018, Proceedings (Vol. 10899). Springer.
3. Jensen, P. T., Koh, K., Cash, R., Ardoin, S. P., & **Hyder, A.** 2018. Inpatient Mortality in Transition-Aged Youth with Rheumatic Disease: An Analysis of the National Inpatient Sample. In Arthritis and Rheumatology (Vol. 70). Wiley.
4. Lee, B.Y., Moustakas, A., Zeigler, A., Prague, M., Santos, R., Chung, M., Gras, R., Forbes, V., Borg, S., Comans, T., Ma, Y., Punt, N., Jusko, W., Brotz, L. and **A. Hyder**. 2016. Population modelling by examples ii In: Summer Computer Simulation Conference. Article #51.
5. **Hyder, A.**, Keumseok, K. (2017). Modeling the Food Accessibility in Columbus, OH Using Spatial Microsimulation and Agent-based Modeling. Association for Public Policy Analysis and Management. <https://appam.confex.com/appam/2017/webprogram/Session9149.html>.

### *Reports*

1. Thein, H. H., Gojovic, M., **Hyder, A.**, Beca, J., and Craig Earle. 2014. Canadian Partnership Against Cancer's Cancer Risk Management Model Evaluation Case Study: Cost- Effectiveness of Expanded Prevention and Treatment Programs for Cervical Cancer. Ontario Institute for Cancer Research.
2. **Hyder, A.** Reducing Infant Mortality in Ohio: Individuals, Communities, Systems, and Interventions: All Babies Matter Simulation model for Infant Mortality or "ABM-Sim4IM". Retrieved from [https://procure.ohio.gov/ProcOppForm/DADOH-18-EP-001\\_ODH%20Final%20Report%2006-2017.zip](https://procure.ohio.gov/ProcOppForm/DADOH-18-EP-001_ODH%20Final%20Report%2006-2017.zip)

### **Presentations (presenter in bold)**

***Invited presentations:***

- **Hyder, A.** (2020) *Enhancing Equity in Infectious Disease: Lessons from the Bench and Between Disciplines*. October 6, 2020. Online.
- **Hyder, A.** (2020) *Models, Data, Sensing, and “Smart” to Solve Public Health Crisis (COVID-19)*. Departmental Colloquium, Mathematics, Arizona State University, May 5, 2020, Online.
- **Hyder, A.** (2020) *Models, Data, Sensing, and “Smart” to Solve Public Health Crisis (COVID-19 and Opioids)*. NeTS Community Workshop, April 13, 2020, Online.
- **Hyder, A.** (2019) Society for Epidemiologic Research, June 18-21, 2016, Minneapolis, Minnesota, United States.
- **Hyder, A.,** and May, A. (2018). Smart Sensors for Smart Cities: Two Examples of Multi-Sector Collaborations in Central Ohio. SuccessBound Central Ohio Conference. Columbus, Ohio.
- **Hyder, A.,** Machiraju, R. and Arora, A. (2017). Panel on Putting the Smarts in Smart Columbus: Data Ecosystems for Smart and Healthy Communities. Midwest Big Data Hub All-Hands Meeting. Omaha, Nebraska.
- **Hyder, A.** (2017). 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.
- **Hyder, A.** (2017) *Agent-based modeling: Theory and Application*. Research Methods Festival, The Ohio State University, Columbus, Ohio.
- **Hyder, A.** (2016) *Complex Systems Models in Epidemiology: Past, Present and Future*. OSU-Center for Excellence in Regulatory Tobacco Science Seminar Series. Columbus, Ohio, US.
- **Hyder, A.** (2016) *Complex Systems Models for Environmental Epidemiology: Application to Childhood Asthma*. Environmental Health Seminar Series, Cincinnati Children's Hospital Medical Center. Cincinnati, Ohio, US.
- **Hyder, A.** (2016) *Integrating Public Health and Social Work through Translational Data Analytics: Examples from Infant Mortality & Food Insecurity*. College of Social Work Research Day. Columbus, Ohio, US.
- **Hyder, A.** (2016) *Integrating Public Health, Healthcare and Policy using Translational Data Analytics: Examples from Infant Mortality, Food Insecurity and Pediatric Asthma*. Glen Colloquium Series. Columbus, Ohio, US.
- **Hyder, A.** (2016) *Transforming the Food Environment for Better Health: A Systems Approach (using Translational Data Analytics)*. IC-FOODS Conference. Davis, California, US.
- **Hyder, A.** (2016) *Complex Systems Models in Epidemiology: Past, Present and Future*. OSU-Center for Excellence in Regulatory Tobacco Science Seminar Series, College of Public Health, The Ohio State University, Columbus, Ohio, US.
- **Hyder, A.** (2015) *Complex Systems Models for Better Decisions and Better Health: Examples from Influenza, Cancer and Asthma*. Data Mining Research Lab Seminar Series, Department of Computer and Information Science, The Ohio State University, Columbus, Ohio, US.
- **Hyder, A.** (2015) *Complex Systems Models for Better Decisions and Better Health: Examples from Influenza and Population Health* Disease Ecology and Computer Modeling Laboratory Seminar Series, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, Ohio, US.
- **Hyder, A.** (2015) *Complex Systems Models for Environmental Epidemiology: Applications to Asthma, Residential segregation and Population health*. Division of Environmental Health Seminar Series, College of Public Health, The Ohio State University, Columbus, Ohio, US.

- **Hyder, A.** (2014) *A Caution on "Big" Data and Prediction in Epidemiology and Public Health Decision-Making*. Big Data and Health Policy Workshop. Fields Institute, Toronto, Ontario, Canada.
- **Hyder, A.** and B. Leung. (2012) *Integrating Predictors of Health Disparities with a Complex Model of Influenza Spread*. Dynamic of Preparedness: A Public Health Systems Conference. MIDAS National Center of Excellence. University of Pittsburgh, United States.
- **Hyder, A.**, Lee, H.J., Ebisu, K., Koutrakis, P., Bell, M.L. and K. Belanger. (2012) *Does the Data Source of Exposure Assessment (Land-Based Monitors vs Satellite) Modify the Effect of PM<sub>2.5</sub> Exposure on Birth Outcomes?* Annual International Society of Environmental Epidemiology Conference. Columbia, South Carolina, United States.
- **Hyder, A.**, Jeanmougin, M., and B. Leung. (2011) *The role of scale and heterogeneity on disease spread among vulnerable populations during an epidemic*. Center for Disease Modeling Group Meeting. York University, Canada.
- **Hyder, A.**, Jeanmougin, M., and B. Leung. (2011) *The role of scale and heterogeneity on disease spread among vulnerable populations during an epidemic*. Epistemology of Modeling and Simulation. MIDAS National Center of Excellence. University of Pittsburgh, United States.
- **Hyder, A.**, Leung, B., Verma, A., and D. Buckeridge. (2009) *Prediction and validation of influenza spread models*. MITACS Annual Conference, University of New Brunswick, Canada.

**Poster presentations:**

- **Hyder, A.** Public Funding for Genomics and the Return on Investment: A Public Health Perspective. (2019) Society for Epidemiological Research, June 18-21, 2016, Minneapolis, Minnesota, United States.
- Koh, K., Reno, R., and **Hyder, A.** 2018. *Designing an Agent-Based Model using Group Model Building: Application to Food Insecurity Patterns in a U.S. Midwestern Metropolitan City*. (2019) Society for Epidemiological Research, June 18-21, 2016, Minneapolis, Minnesota, United States.
- **Hyder, A.** (2016) *Integrating air pollution exposure in a mechanistic agent-based model of asthma: Model development and application to childhood asthma outcomes*. International Society for Epidemiological Research. Rome, Italy.
- **Hyder, A.**, H-H(Rosie), Thein, and Marcelo Urquia. (2016) *Effect of residential mobility and immigrant status on birth outcomes: A retrospective study of pregnant women in Ontario from 2000-2012*. Society for Epidemiological Research and Society for Perinatal Epidemiological Research, June 21-22, 2016, Miami, Florida, United States.
- **Hyder, A.**, Marcon, N., Stein, L., Godfrey, T., and Hla-Hla Thein. (2015) *Cost-effectiveness of sponge-based surveillance with genetic testing for early diagnosis of esophageal adenocarcinoma*. Translational Data Analytics Fall Forum, Columbus, Ohio, United States.
- **Hyder, A.**, Marcon, N., Stein, L., Godfrey, T., and Hla-Hla Thein. (2015) *Cost-effectiveness of sponge-based surveillance with genetic testing for early diagnosis of esophageal adenocarcinoma*. OICR/CCO Health Services Research Program's 7th Annual Meeting, Toronto, Ontario, Canada.
- **Hyder, A.**, Stein, L., and Hla-Hla (Rosie) Thein. (2014) *Development and validation of a microsimulation model to evaluate the cost-effectiveness of innovative screening and surveillance for early detection of esophageal adenocarcinoma*. Society for Medical Decision Making North America Meeting, Miami, Florida, United States.
- **Hyder, A.**, Ahern, J., Bell, M.L., and K. Belanger. (2013) *Extending a population health model to integrate the role of scale and vulnerability in environmental health disparities research: Application to birth outcomes in Connecticut*. Healthy Cities, Healthy Communities Symposium, Toronto, Ontario, Canada.

- **Hyder, A., B. Leung and Z. Miao.** (2007) *Integrating Data, Biology, and Decision Models for Invasive Species Management: Application to Leafy Spurge (Euphorbia esula)*. Evolutionary Change in Human-altered Environments. Los Angeles, California, United States.

## TEACHING

<u>Term</u>	<u>Course number and title</u>	<u>Enrollment</u>	<u>SEI</u>
Spring 2017	EHS3310 Current Issues in Global Environmental Health	114	2.8
Autumn 2017	EHS3310 Current Issues in Global Environmental Health	99	4.0
Spring 2018	EHS3310 Current Issues in Global Environmental Health	104	4.0
Spring 2018	EPI7411 Environmental Epidemiology	3	3.5
Autumn 2018	EHS3310 Current Issues in Global Environmental Health	98	3.52
Spring 2019	EHS3310 Current Issues in Global Environmental Health	112	3.42
Spring 2019	HLTH5015 Public Health Data Analytics I	12	3.83
Autumn 2019	HLTH5015 Public Health Data Analytics I	10	4.80
Autumn 2019	EHS3310 Current Issues in Global Environmental Health	103	3.65
Spring 2020	HLTH7015 Public Health Data Analytics II	4	NA
Spring 2020	EHS3310 Current Issues in Global Environmental Health	98	NA
Spring 2020	EPI7411 Environmental Epidemiology	6	4.40
Autumn 2020	HLTH5015 Public Health Data Analytics I	12	4.60
Spring 2021	HLTH7015 Public Health Data Analytics II	12	4.50
Spring 2021	EPI7411 Environmental Epidemiology (Ind. Study)	3	NA

## Trainees

### *Postdoctoral*

7/16 – 5/17	Rebecca Reno	Postdoctoral Researcher	<u>Current position:</u> Postdoctoral Fellow, School of Public Health, UC Berkley
8/16 – 8/18	Peter Koh	Postdoctoral Researcher	<u>Current position:</u> Assistant Professor, Tenure Track, University of Hong Kong
7/19 – 8/20	Mikaela Smith	Postdoctoral Researcher	

### *PhD, Committee Member*

2020	John Lowrey (Fisher College of Business, Department of Management Sciences)
2020	Yuchen Li (College of Arts and Sciences, Department of Geography)
2019-2021	Omar Tahtamooni (Environmental Health, University of Pittsburg)
2017	Tyler Gorham

### *PhD, Co-Advisor*

1/17 – 12/17	Daniel Brook	PhD Student (MSTP)
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### *MPH*

8/17 – 6/18	Paul Jensen	CTSA
8/17 – 8/18	Willa DN Skeeahan	Epidemiology
		<u>Current Position:</u> Senior Data Analyst, CoverMyMeds

### *MSc*

8/17 – 5/19	Lottie Sinkula	Epidemiology
7/19 – 5/20	Christopher Eisner	Epidemiology

### *Undergraduate*



8/17 – 7/19	Ashley Dundon	Research Assistant
8/17 – 12/17	Jordan Amann	Undergraduate Volunteer
8/17 – 12/17	Zineb Habroune	Undergraduate Volunteer
1/16 – 5/16	Ayesh Butt	Research Assistant
5/19 – 1/20	Faraz Shaikh	Undergraduate Volunteer
5/20 – 7/20	Sana Lalani	Research Assistant
5/20 – 12/20	Ruth Plante	Research Assistant
5/20 – present	Enaho Liu	Research Assistant
5/20 – present	Pranav Padamanabhan	Research Assistant
1/21 – present	Eman Eltobgy	Research Assistant
1/21 – present	Yousef Alish	Research Assistant

## SERVICE

### *Professional societies:*

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

### *Internal committees:*

#### University-wide

2019	Translational Data Analytics Institute Faculty Director Search Committee
2019	Research and Creative Expression Strategic Planning Committee
2018	OSU Smart Campus Steering Committee

#### College of Public Health

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

### *External service:*

2021-present	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-present	Advised, developed, and presented COVID-19 data, mitigation strategies and surveillance strategies for multiple Central Ohio school districts.
2020-present	Participated in COVID-19 Medical Advisory Board (for Upper Arlington City School District, Hilliard City School District, Dublin City School District).
2020-present	Advised Ohio COVID-19 Minority Health Task Force on data curation, analysis, and data interpretation.
2020-present	Advisor to several Ohio mosques and cultural centers on pandemic preparedness and mitigation strategies.
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	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 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.
- 2020 Food- and agriculture-focused proposal review panel for the National Science Foundation's (NSF) [Smart and Connected Communities \(S&CC\) program](#) (*Invited but declined*).
- 2019-present Advisor to The Supporting Ohioans throughout Addiction and Recovery (SOAR) Initiative (developers of the SOAR App for Overdose Surge and Deadly Batch Alerts) on data curation, substance use data, GIS and technology integration.
- 2019-2020 Chair of the MORPC Air Quality Sensor Network subgroup, Mid-Ohio Regional Planning Commission.
- 2017-2018 Member of Smart Columbus Technical Working Group on Data Use Cases.
- 2018 Advisor to Committee and Steering Committee for Health Policy Institute of Ohio project on Social Determinants of Health for Infant Mortality.
- 2017 Advisor to Committee on State Health Improvement Plan: Maternal and Child Health Working Group.

***Reviewer for scientific journals:***

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

***Conferences***

- **Program Committee Member** of 2018 and 2019 International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS)

**FUNDING**

***Ongoing Research Support***

1. 2020-2021, Educational Service Center of Central Ohio \$202,769  
 COVID-19 Analytics and Targeted Surveillance System for Schools  
 PI: Ayaz Hyder (30% academic effort)
2. 2021-2022, Office of Research Seed Grant \$20,000  
 Rapid Prototyping of Computational Workflows for COVID-19 Pandemic Response and Recovery  
 PI: Ayaz Hyder (15% in-kind effort)
3. 2019-2022, NIH, HEALing Community Study \$65,953,518  
 Optimizing HEALing in Ohio (OHIO)

PI: Rebecca Jackson (The Ohio State University)  
Role: Co-PI (15% academic effort)

4. 2019-2022, Centers of Disease Control \$3,974,855  
Franklin County Overdose Data to Action  
PI: Joe Mazzola (Franklin County Public Health)  
Role: Key Personnel (5% academic effort)
5. 2018-2020, NSF, S&CC: Smart & Connected Communities (1737573) \$500,000  
Developing an Informational Infrastructure for Building Smart Regional Foodsheds  
PI: Tom Tomich (University of California, Davis)  
Role: Co-PI (1 summer month effort)
6. 2018-2021, Anonymous (Foundation) \$5,091,714  
OPEN: The Ohio Policy Evaluation Network  
PI: Allison Norris (The Ohio State University) and Danielle Bessett (University of Cincinnati)  
Role: Co-PI (20% academic effort)
7. 2018-2021, NSF, BD Spokes -Big Data Regional Innovation Spokes (1761969) \$651,000  
Big Data Hub: Spoke: Community-Driven Data Engineering for Opioid and Substance Abuse in the Rural Midwest  
PI: Raghu Machiraju (The Ohio State University)  
Role: Co-PI (0.75 summer month)

***Pending***

1. 2021-2022, NSF, SRS RN: Planning for sustainable food systems \$149,889  
PI: Stacey Giroux (Indiana University)  
Role: Senior Key Personnel (10% in-kind effort)
2. 2021-2022, NSF, SCC-CIFIC-PG Track B Ohio Resilient Emergency Food Supply Data Solutions Planning Project \$49,947  
PI: Casey Hoy (The Ohio State University)  
Role: Co-I (15% in-kind effort)
3. 2021-2026, NSF, AI Institute: ICICLE: Intelligent CyberInfrastructure with Computational Learning in the Environment \$19,999,998  
PI: DK Panda  
Role: Senior Key Personnel (0.5 months academic effort)
4. 2021-2023, CDC, Center for Disease Control and Prevention's Community Health Workers for COVID Response and Resilient Communities \$15,000,000  
PI: Ohio Department of Health  
Role: Co-Investigator (40% academic effort)
5. 2021-2023, PCORI, Integrating PCOR into American Muslim Institutions for Informed COVID-19 Vaccine Decision-Making \$200,000

PI: Ayaz Hyder (10% academic effort)

***Completed***

1. 2016-2017, Government Resource Center, State of Ohio \$541,833  
Systems Modeling of Infant Mortality in Ohio, Infant Mortality Research Partnership  
PI: Joshua Hawley (The Ohio State University)  
Role: Co-PI
2. 2016-2017, Initiative for Food and AgriCultural Transformation Seed Grant \$31,000  
Transforming the Food Environment for Better Health: A Systems Approach  
PI: Ayaz Hyder (The Ohio State University)
3. 2016-2018, NIH, NICHD (Sub-project of P2CHD058484) \$53,795  
Effect of lifetime intergenerational exposures to environmental toxicants and socio-demographic factors on prenatal and cognitive outcomes in children  
PI: Ayaz Hyder
4. 2018-2019, Opioid Innovation Fund (OSU Internal Seed Grant) \$96,762  
Franklin County Opioid Crisis Activity Levels (FOCAL) Map  
PI: Harvey Miller (The Ohio State University)  
Role: Co-PI
5. 2016-2019, NSF Div Chem, Bioeng, Environ, & Trnsp (1645226) \$99,613  
EAGER: Incorporating Citizen Science into Real-Time Sensor-Based Estimates of Traffic-Related Air Pollution Exposure  
PI: Andrew May (The Ohio State University)  
Role: Co-PI
6. 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  
PI: Ayaz Hyder