

DAVID A. HOLCOMB
Department of Epidemiology
University of North Carolina at Chapel Hill
135 Dauer Dr., Chapel Hill, NC 27599
dholcomb@unc.edu; 919-623-4872

EDUCATION

- 2019** Ph.D., Environmental Sciences and Engineering
University of North Carolina, Chapel Hill, NC
Dissertation: *Characterizing domestic fecal transmission and child enteric infections during an urban onsite sanitation intervention*
- 2012** B.S., Environmental Science with highest honors, chemistry minor
University of North Carolina, Chapel Hill, NC
Thesis: *The reduction of nitrate by iron, zinc, copper, and brass media*

PROFESSIONAL EXPERIENCE

- 2019 –** Postdoctoral Trainee, Department of Epidemiology, UNC Chapel Hill
- 2013 – 2019** Graduate Research Assistant, Department of Environmental Sciences and Engineering, UNC Chapel Hill
- 2012 – 2013** Research Assistant, The Water Institute, UNC Chapel Hill
- 2012** Research Technician, Nicholas School of the Environment, Duke University
- 2011 – 2013** Research Assistant, Department of Environmental Sciences and Engineering, UNC Chapel Hill

HONORS & AWARDS

- 2019** Graduate Student Transportation Grant, UNC Graduate School
- 2018** Paul Hardin Dissertation Fellowship, UNC Graduate School
- 2018** Royster Society of Fellows
- 2018** Linda West Little Research Endowment in Waste Management, UNC ESE
- 2015** Honorable Mention, NSF Graduate Research Fellowship Program
- 2013** Graduate Student Opportunity Fund Award, UNC Graduate School
- 2013** Annual Fund Scholarship, UNC Gillings School of Global Public Health
- 2013** Graduate Merit Assistantship, UNC Graduate School
- 2012** Phi Beta Kappa
- 2011** Honors Thesis Research Grant, Honors Carolina, UNC

PUBLICATIONS

Refereed Journal Articles

5. Berendes, D., D. Capone, J. Knee, **D. Holcomb**, S. Sultana, A. Pickering, J. Brown. (2020). "Associations between enteric pathogen carriage and height-for-age, weight-for-age, and weight for height in children under 5 years old in urban Dhaka, Bangladesh." *Epidemiology and Infection*. In press.
4. Capone, D., Z. Adriano, D. Berendes, O. Cumming, R. Dreibelbis, **D. Holcomb**, J. Knee, I. Ross, J. Brown. (2019). "A localized sanitation status index as a proxy for fecal contamination in urban Maputo, Mozambique." *PLoS ONE* 14(10): e0224333. doi: 10.1371/journal.pone.0224333
3. **Holcomb, D.**, K. Messier, M. Serre, J. Rowny, J. Stewart. (2018). "Geostatistical prediction of microbial water quality throughout a stream network using meteorology, land cover, and spatiotemporal autocorrelation." *Environmental Science and Technology* 52 (14), 7775–7784. doi:10.1021/acs.est.8b01178.
2. Luh, J., E. Christenson, A. Toregozhina, **D. Holcomb**, T. Witsil, L. Hamrick, E. Ojomo, J. Bartram. (2015). "Vulnerability assessment for loss of access to drinking water due to extreme weather events." *Climatic Change* 133 (4), 665-679. doi:10.1007/s10584-015-1493-0
1. Brown, J., O. Cumming, J. Bartram, S. Cairncross, J. Ensink, **D. Holcomb**, J. Knee, P. Kolsky, K. Liang, S. Liang, R. Nala, G. Norman, R. Rhenigans, J. Stewart, O. Zavale, V. Zuin, W.P. Schmidt. (2015). "A controlled, before-and-after trial of an urban sanitation intervention to reduce enteric infections in children: research protocol for the Maputo Sanitation (MapSan) Study, Mozambique." *BMJ Open* 5 (6), e008215. doi:10.1136/bmjopen-2015-008215.

Refereed Journal Articles – Submitted or In Review

2. **Holcomb, D.** J. Knee, T. Sumner, Z. Adriano, E. de Bruijn, R. Nalá, O. Cumming, J. Brown, J. Stewart. "Human fecal contamination of water, soil, and surfaces in households sharing poor-quality sanitation facilities in Maputo, Mozambique." *International Journal of Hygiene and Environmental Health*.
1. **Holcomb, D.**, J. Stewart. "Microbial Indicators of Fecal Pollution: Recent Progress and Challenges in Assessing Water Quality." *Current Environmental Health Reports*.

Refereed Journal Articles – In Preparation

2. Berendes, D., L. Dengo-Baloi, **D. Holcomb**, J. Knee, J.P. Langa, R. Nala, J. Stewart, J. Brown. "Detection of antibiotic-resistant fecal coliforms in household soil, stored drinking water, and food preparation surfaces in a dense, low-income urban environment."
1. **Holcomb, D.**, J. Knee, T. Sumner, Z. Adriano, O. Cumming, R. Nala, J. Brown, J. Stewart. "Impact of an onsite sanitation intervention on human fecal contamination of the domestic environment in urban Maputo, Mozambique."

PRESENTATIONS

Conference Presentations – Verbal

14. **Holcomb, D.**, J. Knee, T. Sumner, O. Cumming, R. Nala, J. Brown, J. Stewart. "Human Fecal Contamination in Urban Mozambican Households." UNC Water and Health Conference, Chapel Hill, NC, USA. October 2019.
13. **Holcomb, D.**, D. Capone. "Intervention Effects on Ambient Fecal Contamination." Maputo Sanitation (MapSan) Trial Side Event, UNC Water and Health Conference, Chapel Hill, NC, USA. October 2019.
12. **Holcomb, D.**, J. Knee, T. Sumner, O. Cumming, R. Nala, J. Brown, J. Stewart. "Characterizing domestic fecal contamination and the impacts of an urban sanitation intervention in Maputo, Mozambique." 11th International Water & Health PhD Student Seminar, Cannes, France. June 2019.
11. Dengo-Baloi, L., D. Berendes, **D. Holcomb**, J. Knee, J. Langa, A. Magaia, R. Nala, J. Brown. "Increased antibiotic resistance in the community in Maputo, Mozambique: preliminary results of microbial analysis of a pathogen rich environment." XVI Jornadas Nacionais De Saúde (National Health Journeys), Maputo, Mozambique. September 2018.
10. **Holcomb, D.**, J. Knee, T. Sumner, J. Brown, J. Stewart. "Impact of an onsite sanitation intervention on human and avian fecal contamination in urban Mozambican households" UNC Water Microbiology Conference, Chapel Hill, NC. May 2018.
9. Berendes, D., **D. Holcomb**, J. Knee, T. Sumner, R. Nala, J. Brown. "Antibiotic resistance in dense, low-income neighborhoods: the role of sanitation in gene dispersion." ASTMH: 66th Annual Meeting, Baltimore, MD. November 2017.
8. **Holcomb, D.**, J. Knee, T. Sumner, J. Brown, J. Stewart. "Impact of a controlled, before-and-after trial of shared, onsite sanitation on environmental exposure to fecal contamination in low-income neighborhoods of urban Maputo, Mozambique." UNC Water Microbiology Conference, Chapel Hill, NC. May 2017.
7. **Holcomb, D.**, K. Messier, M. Serre, J. Rowny, J. Stewart. "Predicting microbial water quality in an inland stream network: a comparison of statistical modeling approaches and the role of observational data in assessing compliance with water quality standards." North Carolina Water Resources Research Institute Annual Conference, Raleigh, NC. March 2016. [cancelled due to illness]
6. **Holcomb, D.**, J. Knee, J. Brown, J. Stewart. "Characterizing environmental exposure to fecal contamination: preliminary baseline results from the MapSan trial in Maputo, Mozambique." Maputo Sanitation Trial Side Event, UNC Water and Health Conference, Chapel Hill, NC. October 2015.

5. Elliot, M., O. Banerjee, E. Christenson, **D. Holcomb**, L. Hamrick, J. Bartram. “An Analysis of the Vulnerability of Global Drinking Water Access to Climate-related Hazards.” AGU Fall Meeting 2014, San Francisco, California. December 2014.
4. Elliot, M., O. Banerjee, E. Christenson, **D. Holcomb**, L. Hamrick, J. Bartram. “Vulnerability of Drinking Water Access to Climate-related Hazards – A Global Analysis.” Water and Health Conference, Chapel Hill, NC. October 2014.
3. Christenson, E., M. Elliot, **D. Holcomb**, L. Hamrick, J. Bartram. “Modeling global, urban, and rural exposure to climate-related hazards.” ESRI International User Conference, San Diego, CA. July 2014.
2. Luh, J., E. Christenson, **D. Holcomb**, L. Hamrick, and J. Bartram. “Assessing the impact of climate change related hazards on the vulnerability of North Carolina drinking water systems.” North Carolina American Water Works Association 93rd Annual Conference, Charlotte, NC. November 2013.
1. Banerjee, O., M. Elliot, E. Christenson, **D. Holcomb**, J. Bartram. “High-Resolution, Population-Based Global Vulnerability Analysis of Drinking Water Access to Climate-Related Hazards.” AEESP 50th Anniversary Conference, Golden, CO. July 2013.

Conference Presentations – Poster

8. Berendes, D., L. Dengo-Baloi, **D. Holcomb**, J. Knee, T. Sumner, R. Nala, J. Brown. “Antibiotic resistance detected in *Escherichia coli* and *Klebsiella* spp. isolates from household water, food preparation surfaces, and soil in compounds in Maputo, Mozambique: implications for environmental transmission outside the clinic.” International Conference on Emerging Infectious Diseases, Atlanta, GA. August 2018.
7. **Holcomb, D.**, J. Knee, T. Sumner, J. Brown, J. Stewart. “Occurrence of human and avian fecal contamination in urban Mozambican households: assessing fecal transmission in the MapSan trial.” UNC Water and Health Conference, Chapel Hill, NC. October 2017.
6. **Holcomb D.**, and J. Stewart. “Validation of quantitative PCR assays to detect fecal contamination of general, human, and poultry origin in low-income neighborhoods of urban Maputo, Mozambique.” UNC Water Microbiology Conference, Chapel Hill, NC. May 2017.
5. Wang, C., **D. Holcomb**, P. Singer, O. Coronell. “Granular brass media as a technology for the removal of dissolved copper and lead from water.” Water and Health Conference, Chapel Hill, NC. October 2014.
4. **Holcomb, D.**, M. Serre, J. Rowny, J. Stewart. “Application of predictive and interpolative models of fecal contamination in an urbanizing watershed.” Water Microbiology Conference, Chapel Hill, NC. May 2014.

3. Elliot, M., O. Banerjee, E. Christenson, **D. Holcomb**, L. Hamrick, J. Bartram. “Global assessment of drinking water vulnerability to climate related hazards.” WASH 2014 Conference, Brisbane, Australia. March 2014.
2. Elliot, M., O. Banerjee, E. Christenson, **D. Holcomb**, L. Hamrick, J. Bartram. “Global assessment of drinking water vulnerability to climate related hazards.” Nexus 2014: Water, Food, Climate, and Energy Conference, Chapel Hill, NC. March 2014.
1. Luh, J., E. Christenson, **D. Holcomb**, L. Hamrick, and J. Bartram. “Assessing the impact of climate change related hazards on the vulnerability of U.S. drinking water systems.” Water and Health Conference, Chapel Hill, NC. October 2013.

Invited Presentations

2. Kolsky, P., M. Manga, J. Stewart, **D. Holcomb**, J. Bartram. “Proof of concept of estimates of unsafe return of human excreta to the environment.” Bill & Melinda Gates Foundation MEDS Convening, Patna, Bihar, India. November 2017. (poster)
1. **Holcomb, D.**, J. Knee, J. Brown, J. Stewart. “Characterizing environmental exposure to human fecal contamination in the MapSan Trial.” National Institute of Health, Ministry of Health, Republic of Mozambique. Maputo, Mozambique. July 2015.

TEACHING

- Fall 2018** Guest lecturer, *Ecological Microbiology*, UNC ESE (Instructor: D. Singleton)
- Fall 2016** Guest lecturer, *Ecological Microbiology*, UNC ESE (Instructor: J. Stewart)
- Fall 2014** Graduate Teaching Assistant, *Laboratory Experiments in Genetics*, UNC Biology (Instructor: S. Grant)
- Spring 2014** Trainee, *Campus to Community: Public Health Teacher Training Program*

MENTORING

- 2017** Committee member, Jack Cordes undergraduate honors thesis
Cordes awarded Highest Honors
- 2016** Supervisor, Anna Stamatogiannakis independent undergraduate research
Stamatogiannakis awarded UNC Summer Undergraduate Research Fellowship (2016) and Mingba Norbu Sherpa Fellowship (2016) to conduct this research
- 2014 – 2015** Mentor, UNC Environmental Sciences & Engineering Mentorship Program

SERVICE

Department of Environmental Sciences and Engineering, UNC Chapel Hill

- 2018 – 2019** Search Committee, Director of The Water Institute at UNC
- 2015 – 2016** Search Committee, Department Chair
- 2015 – 2016** Student Representative to the Faculty
- 2014 – 2018** Undergraduate Research Liaison, UNC Office of Undergraduate Research
- 2014 – 2015** President, UNC Environmental Students Organization

Scientific Journals

Editorial Board

Guest Editor, *International Journal of Hygiene and Environmental Health* special issue

Peer Review

Environmental Science and Technology

Science of the Total Environment

Workshop and Conference

2018 Organizer and Host, Careers in WaSH speaker series, UNC Water and Health Conference

2017 Moderator, Water Reuse session, UNC Water and Health Conference

2017 Moderator, Viral Pathogens session, UNC Water Microbiology Conference

2017 Abstract Reviewer, UNC Water Microbiology Conference