

Warren Christopher Jochem

School of Geography and Environmental Science
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Positions

- 2018 – present Senior Research Fellow
School of Geography and Environmental Science
WorldPop Project (<http://www.worldpop.org>)
University of Southampton (UK)
Supervisor: Andy Tatem
- 2016 – 2018 Research Fellow
School of Geography and Environmental Science
WorldPop Project
University of Southampton (UK)

Education

- 2016 PhD in Geography
University of Colorado Boulder (USA)
- 2012 MA in Geography
Certificate in Demography
University of Colorado Boulder (USA)
- 2007 BA with Highest Distinction and Highest Honors in Geography
University of North Carolina at Chapel Hill (USA)

Publications

Refereed Publications

*Contributed equally

Jochem, Warren C. and Andrew J. Tatem. (2021). "Tools for mapping multi-scale settlement patterns of building footprints: An introduction to the R package *foot*." *PLoS ONE* 16(2): e0247535. <https://doi.org/10.1371/journal.pone.0247535>.
Dataset available: <https://eprints.soton.ac.uk/446482/>

Lloyd, Christopher T., Hugh Sturrock, Douglas Leasure, Warren C. Jochem, Attila N. Lazar, and Andrew Tatem (2020). "Classifying residential status of urban building types in low and middle income settings." *Remote Sensing*, 13(23), 3847. <https://doi.org/10.3390/rs12233847>.

- Leasure, Douglas R., Warren C. Jochem, Eric M. Weber, Vincent Seaman, Andrew J. Tatem. (2020). “National population mapping from sparse survey data: A hierarchical Bayesian modeling framework to account for uncertainty.” *Proceedings of the National Academy of Sciences*. <https://doi.org/10.1073/pnas.1913050117>.
- Jochem, Warren C., Douglas R. Leasure, Oliver Pannell, Heather R. Chamberlain, Patricia Jones, Andrew J. Tatem. (2020). “Classifying settlement types from multi-scale patterns of building footprints.” *Environment and Planning B*. <https://doi.org/10.1177/2399808320921208>.
- Qader, Sarchil Hama, Veronique Lefebvre, Andrew J. Tatem, Utz Pape, Warren Jochem, Kristen Himelein, Amy Ninneman, Philip Wolburg, Gonzalo Nunez-Chaim, Linus Bengtsson, and Tomas Bird. (2020). “Using gridded population and quadtree sampling units to support survey sample design in low-income settings.” *International Journal of Health Geographics*, 19(10). <https://doi.org/10.1186/s12942-020-00205-5>
- Chowdhury, Atique Iqbal, Abu Yousuf Md Abdullah, Rafiqul Haider, Asraful Alam, Sk Masum Billah, Sanwarul Bari, Qazi Sadeq-ur Rahman, Warren C. Jochem, Ashraf Dewan, and Shams El Arifeen. (2019). “Analyzing spatial and space-time clustering of facility-based deliveries in Bangladesh.” *BMC Tropical Medicine and Health*, 47(44), 1349-4147. <https://doi.org/10.1186/s41182-019-0170-9>.
- Thomson, Dana R., Lieke Kools, and Warren C. Jochem. (2018). “Linking synthetic populations to household geolocations: A demonstration in Namibia.” *Data*, 3(3), <https://doi.org/10.3390/data3030030>.
- Wardrop, Nicola A.*, Warren C. Jochem*, Tomas J. Bird, Heather R. Chamberlain, Donna Clarke, David Kerr, Linus Bengtsson, Sabrina Juran, Vincent Seaman, and Andrew J. Tatem (2018). “Spatially disaggregated population estimates in the absence of national population and housing census data.” *Proceedings of the National Academy of Sciences*, 115(14), 3529-3537. <https://doi.org/10.1073/pnas.1715305115>.
- Jochem, Warren C., Tomas J. Bird, and Andrew J. Tatem (2018). “Identifying residential neighbourhood types from settlement points in a machine learning approach.” *Computers, Environment and Urban Systems*, 69, 104-113. <https://doi.org/10.1016/j.compenurbsys.2018.01.004>.
- Riosmena, Fernando, Randall Kuhn, and Warren C. Jochem. (2017). “Explaining the immigrant health advantage: Self-selection and protection in health-related factors among five major national-origin groups in the United States.” *Demography*, 54(1): 175-200. [10.1007/s13524-016-0542-2](https://doi.org/10.1007/s13524-016-0542-2).
- Jochem, Warren C., Abdur Razzaque, and Elisabeth Dowling Root. (2016) “Effects of health intervention programs and arsenic exposure on child mortality from acute lower respiratory infections in rural Bangladesh.” *International Journal of Health Geographics* 15(32). [10.1186/s12942-016-0061-9](https://doi.org/10.1186/s12942-016-0061-9).

Jochem, Warren C., Kelly Sims, Edward A. Bright, Marie L. Urban, Amy N. Rose, Phillip R. Coleman, and Budhendra L. Bhaduri. (2013). “Estimating traveler populations at airport and cruise terminals for population distribution and dynamics.” *Natural Hazards* 68: 1325-1342. [10.1007/s11069-012-0441-9](https://doi.org/10.1007/s11069-012-0441-9).

Riosmena, Fernando and Warren C. Jochem. (2012). “Vulnerability, resiliency, and adaptation: The health of Latin Americans during the migration process to the United States.” *Realidad, Datos y Espacio – Revista Internacional de Estadística y Geografía* 3(2): 14-20.

Omitaomu, Olufemi A., Brandon R. Blevins, Warren C. Jochem, Gary T. Mays, Randy Belles, Stanton W. Hadley, Thomas J. Harrison, Budhendra L. Bhaduri, Bradley S. Neish, Amy N. Rose. (2012). “Adapting a GIS-based multicriteria decision analysis approach for evaluating new power generating sites.” *Journal of Applied Energy* 96: 292-301. [10.1016/j.apenergy.2011.11.087](https://doi.org/10.1016/j.apenergy.2011.11.087).

Book Chapters

Riosmena, Fernando and Warren C. Jochem. (2012). “Immigrant health and health care provision in the United States: Contemporary paradoxes and challenges.” In M. Lemay (Ed.), *Perspectives on US Immigration* (Vol. 3). Santa Barbara, California: ABC-CLIO, Greenwood/Praeger.

Other Publications

Dooley, Claire A., Warren C. Jochem, Alessandro Sorichetta, Attila Lazar, Andrew Tatem, and Maksym Bondarenko. “Description of methods for South Sudan 2019 gridded population estimates from census projections adjusted for displacement, version 2.0.” (2021). University of Southampton. <https://doi.org/10.5258/SOTON/WP00710>.

Jasper, Paul, Warren C. Jochem, Emma Lamber-Porter and Chigozie Edson Utazi. (2021). *Mapping the prevalence of SAM using geo-spatial models* (Project Report). Oxford Policy Management.

Center for International Earth Science Information Network (CIESIN), Flowminder Foundation, United Nations Population Fund (UNFPA) and WorldPop. (2020). *Mapping and Classifying Settlement Locations*. Palisades, NY: Georeferenced Infrastructure and Demographic Data for Development (GRID3). <https://doi.org/10.7916/d8-ptv6-xz87>.

Riosmena, Fernando and Warren C. Jochem. (2013). “Migration and health, Latin Americans in the U.S.” In I. Ness, E. Fussell, A. Julca, and P. Bellwood (Eds.), *Encyclopedia of Global Human Migration*. Malden, MA: Wiley and Sons.

Mays, Gary T., Randy J. Belles, Brandon R. Blevins, Stanton W. Hadley, T. J. Harrison, Warren C. Jochem, Bradley S. Neish, Olufemi A. Omitaomu, Amy N. Rose. (2011). *Application of Spatial Data Modeling and Geographical Information Systems (GIS) for Identification of Potential Siting Options for Various Electrical Generation Sources* (ORNL/TM-2011/157). Oak Ridge, TN: Oak Ridge National Laboratory.

Mays, Gary T., Warren C. Jochem, Sherrell R. Greene, Randy, Belles, Mustafa Cetiner, Stanton W. Hadley. (2009). “Identifying and characterizing candidate areas for siting new nuclear capacity in the United States.” *Transactions of the American Nuclear Society* 101: 505-507.

Manuscripts Submitted and Under Review

Barham, Tania, Brachel Champion, Andrew Foster, Jena Hamadani, Warren C. Jochem, Gisella Kagy, Randall Kuhn, Jane Menken, Abdur Razzaque, Elisabeth D. Root, Patrick Turner. (*In Review*). “Thirty-five year later: Long-term effects of the Matlab maternal and child health/family planning program on older women’s well-being.”

Jochem, Warren C. and Fernando Risomena. (*In Review*). “U.S. migrant networks and health.” In F. Bean and S. K. Brown (Eds.), *Encyclopedia of Migration*, Springer.

Manuscripts in Preparation

Jochem, Warren C., and Elisabeth D. Root. (*Preparing for resubmission*). “Spatial data collection and processing for large household surveys: Experiences from the Matlab Health and Socioeconomic Survey.”

Jochem, Warren C., and Elisabeth D. Root. “Changes in spatial variation of arsenic exposure risk in Matlab, Bangladesh.”

Jochem, Warren C., and Elisabeth D. Root. “Access to arsenic-safe drinking water in rural Bangladesh: An application of spatial discrete choice models.”

Chamberlain, Heather R., Donna J. Clarke, Warren C. Jochem, Nicola Wardrop, David Kerr, Bahadur Hellali, Ahmad J. Rasuli, Shakeeba Rahimi, Bannet Ndyabangi, Abdul Halimi, Bashir Najeeb, Tomas J. Bird, Linus Bengtsson, Sabrina Juran, and Andrew J. Tatem. “National population mapping from spatially incomplete enumeration data.”

Grants and Fellowships

2021	Fellow, Software Sustainability Institute
2016	Travel Grant, University of Colorado Boulder Graduate School
2015	IMGS Travel Grant, AAG Health and Medical Geography Specialty Group
2015 - 2016	Doctoral Dissertation Research Improvement award, National Science Foundation (NSF DDRI)
2012 - 2015	Graduate Research Fellowship Program, National Science Foundation (NSF GRFP)
2012	Travel Grant, University of Colorado Boulder Graduate School
2012	Adam Kolff Memorial Research Fellowship, University of Colorado Boulder Department of Geography
2006	Summer Undergraduate Research Fellowship, UNC-Chapel Hill Office of Undergraduate Research

Awards and Recognitions

2019	Best Poster Award at the Annual Meeting of the Population Association of America (PAA)
2018	Vice Chancellor’s Award for Research Impact awarded to the WorldPop Team, University of Southampton
2017	Jacques May Thesis Prize for best PhD dissertation, AAG Health and Medical Geography Specialty Group

- 2013 Jacques May Thesis Prize for best Masters thesis, AAG Health and Medical Geography Specialty Group
- 2007 McNally Award for Excellence in Geography, Chancellor’s Award, UNC-Chapel Hill Department of Geography
- 2007 Federico G. Gil Chancellor’s Award, UNC-Chapel Hill Institute of Latin American Studies
- 2006 Phi Beta Kappa Honor Society, UNC-Chapel Hill
- 2004 - 2007 Blanchard Scholarship, UNC-Chapel Hill

Conference Papers and Presentations

- 2021 Jochem, Warren C. and Andrew J. Tatem. “Multi-scale gridded urban morphometrics for settlement classification and population mapping.” Paper presented to XXVIII International Seminar on Urban Form, Glasgow, UK (online), 29 June - 03 July 2021.
- 2021 Jochem, Warren C. and Andrew J. Tatem. “Spatial point process models for population estimation and mapping.” Paper presented to the Annual Meeting of the Population Association of America (online), May 5 – 8.
- 2020 Jochem, Warren C. and Andrew J. Tatem. “Spatial point process models for population estimation and mapping.” Paper accepted to the Annual Meeting of the Population Association of America, Washington DC, USA. [event cancelled]
- 2020 Jochem, Warren C. and Andrew J. Tatem. “High resolution population mapping using spatial point process models.” Paper accepted to the European Population Conference, Padova, Italy. [event cancelled]
- 2020 Jochem, Warren C. “Settlement classification from building footprint patterns.” Presentation accepted to Data Science for Development (DS4D) at Turing Institute, London, UK. [event cancelled]
- 2019 Dooley, Claire A., Warren C. Jochem and Andrew J. Tatem. “Impacts of temporal mismatch in observations on high-resolution population mapping.” Paper presented to the Annual Meeting of the Population Association of America, Austin, TX, April 10-13.
- 2018 Jochem, Warren C. and Elisabeth D. Root. “Community clinics and the changing landscape of health facilities in rural Bangladesh.” Paper presented to the American Association of Geographer’s Annual Meeting, New Orleans, LA, April 9 – 15.

- 2017 Menken, Jane, Randall Kuhn, Abdur Razzaque, Tania Barham, Andrew Foster, Elisabeth Root, Warren C. Jochem, Gisella Kagy, Sveta Milusheva, Nobuko Mizoguchi, and Patrick Turner. “35 Years later: Long-terms effects of the Matlab Maternal and Child Health and Family Planning Program on cohort survival and health.” Paper presented by Jane Menken to the IUSSP International Population Conference, Cape Town, South Africa, Oct 29 – Nov 4.
- 2017 Root, Elisabeth D., Warren C. Jochem, Gisella Kagy, and Jane Menken. “Access to health services, economic development, and gender: A longitudinal study in Matlab, Bangladesh”. Paper presented by Elisabeth Root to the International Medical Geography Symposium, Angers, France, July 2 – 7.
- 2017 Jochem, Warren C., Jane Menken, and Elisabeth D. Root. “Health facilities and accessibility in rural Bangladesh.” Paper presented to the International Medical Geography Symposium, Angers, France, July 2 – 7.
- 2017 Menken, Jane, Randall Kuhn, Patrick Turner, Abdur Razzaque, Tania Barham, Andrew Foster, Warren C. Jochem, Gisella Kagy, Sveta Milusheva, Nobuko Mizoguchi, and Elisabeth D. Root. “Long-term effects of the Matlab Maternal and Child Health and Family Planning Program on Cohort survival and Health.” Paper presented by Jane Menken to the Population of Association of America’s Annual Meeting, Chicago, IL, April 27 – 29.
- 2017 Jochem, Warren C., Jane Menken, Elisabeth D. Root. “Health system changes in rural Bangladesh.” Paper presented to the Association of American Geographer’s Annual Meeting, Boston, MA, April 5 – 9.
- 2016 Jochem, Warren C., and Elisabeth D. Root. “Changes in spatial variation of arsenic exposure risk in Matlab, Bangladesh.” Paper presented to the Population Association of America’s Annual Meeting, Washington, DC, March 31 – April 2.
- 2015 Jochem, Warren C., and Elisabeth D. Root. “Geographies of Respiratory Disease and the Role of Arsenic Exposure in Bangladesh.” Paper presented to the International Medical Geography Symposium, Vancouver, BC, July 5-10.
- 2015 Jochem, Warren C., and Elisabeth D. Root. “Groundwater Use and Arsenic Avoidance in Rural Bangladesh.” Paper presented to the Annual Meeting of the Association of American Geographers, Chicago, IL, April 21-25.
- 2014 Jochem, Warren C., Abdur Razzaque, and Elisabeth D. Root. “Social and Spatiotemporal Patterns of Arsenic Exposure in Matlab, Bangladesh.” Paper presented to the Annual Meeting of the Association of American Geographers, Tampa, FL, April 8-12.

- 2013 Riosmena, Fernando, Randall Kuhn, and Chris Jochem. “Migrant Health Selection from Five Major Sources of U.S. Immigration.” Oral presentation to the Population Association of America’s Annual Meeting, New Orleans, LA, April 9-11. Paper presented by Dr. Riosmena.
- 2013 Jochem, Warren C. and Elisabeth D. Root. “Spatial Clustering of Acute Lower Respiratory Infection Mortality Using a Regression-adjusted Spatial Scan Statistic.” Paper presented to the Annual Meeting of the Association of American Geographers, Los Angeles, CA, April 9-13.
- 2012 Jochem, Warren C. and Elisabeth D. Root. “The Role of Arsenic in the Geography of Lung Diseases in Rural Bangladesh.” Paper presented to the Annual Meeting of the Association of American Geographers, New York, NY, February 24-28.
- 2011 Jochem, Warren C. “An Approach to Parallel Geoprocessing with Python.” Paper presented to the Annual Meeting of the Association of American Geographers, Seattle, WA, April 12-16.
- 2010 Jochem, Warren C., Gary T. Mays, Sherrell R. Greene, Randy Belles, Mustafa Cetiner, Stanton W. Hadley. “National Site Suitability and Spatial Modeling of Electrical Generation Sources.” Paper presented to the Annual Meeting of the Association of American Geographers, Washington D.C., April 14-18.
- 2008 Jochem, Warren C. “Estimating Temporary/Mobile Populations at Transportation Centers for Use in Population Distribution Models.” Paper presented to the Annual Meeting of the Association of American Geographers, Boston, MA, April 15-21.

Poster Presentations

- 2019 Thomson, Dana R., Lieke Kools, and Warren C. Jochem. “Linking synthetic populations to household geolocations: A demonstration in Namibia.” Poster presented to the Annual Meeting of the Population Association of America. Austin, TX April 10-13. Presented by Warren C. Jochem. PAA Poster Award Winner
- 2007 Fariss, Barker, Chris Jochem, Brian Billman, Juliana Quist, Alicia Boswell. “Archaeological Survey and Assessment of Cerro Ramon: A Late Intermediate Period Site (1130-1200 AD) in the Upper Moche Valley, North Coast, Peru.”
Presented by Warren C. Jochem to the Eighth Annual Celebration of Undergraduate Research. UNC-Chapel Hill, April 2.
Presented by Barker Fariss to the Annual Meeting of the Society for American Archaeology, Austin, TX. April 27-30.

- 2007 Song, Conghe, Patricia E. Polo Almeida, Laura Brewington, Joseph T. Forrest, Warren C. Jochem, Jackson W. Lord, Steven T. Loy, Paul McCall, Brentley W. Moats, Julie Tuttle, Dahl C. Winters, Jessica L. Wooten, Su Zhang. “A Preliminary Study of Land-cover/Land-use Changes from 1938 to 2002 in the North Carolina Piedmont.” NASA Land-Cover and Land-Use Change Science Meeting. Adelphi, MD. April 6-7. Presented by Dr. Conghe Song.

Other Research Presentations and Meetings

- 2020 Jochem, Warren C. “Settlement.” Invited presentation to the Office for National Statistics, Location and Spatial Talks series. [online]
- 2018 “Arsenic exposure and respiratory health in Bangladesh.” Invited talk to the Wessex Global Health Network, Global Health Café. Southampton.
- 2018 Priorities for Infectious Disease Research in Ghana and Kenya. Invited workshop participant. Accra, Ghana.
- 2018 “Defining urban context from multi-scale spatial patterns of settlement features.” Invited talk to the Applied Spatial Modelling Group, University of Southampton.
- 2017 High-level Meeting on Data for Development in Africa. Invited showcase presentation and participant by the UN Foundation, Global Partnership for Sustainable Development Data. Nairobi, Kenya
- 2016 “Spatial, temporal, and social variation of arsenic exposure risk in rural Bangladesh.” Invited talk to the Applied Spatial Modelling Group, University of Southampton.

Teaching Experience

- Programming for GIS and Spatial Analysis, University of Southampton (2018, 2019, 2020, 2021; course development and co-instructor) – Overall student evaluation 4.7 (out of 5.0).
- Global Public Health, University of Colorado Boulder (Fall 2015; Spring 2016, teaching assistant)
- Introduction to Spatial Regression Analysis, ICPSR Summer Program in Quantitative Methods of Social Research (Summer 2014, teaching assistant)
- Introduction to Human Geography, University of Colorado Boulder (Fall 2010, teaching assistant) – Overall student evaluation: 4.8 (out of 6.0 best); department average TA: 4.6.

Research Experience

- 2012 – 2016 Graduate Research Assistant, Matlab Health and Socioeconomic Survey (MHSS2), University of Colorado Boulder.
Based in Bangladesh (22 months) completing design, training, and implementation of longitudinal follow-up surveys on individual, community-level and health/education facility respondents.
- 2010 – 2016 Graduate Student Affiliate, Health and Society, and Population Programs, Institute of Behavioral Science (IBS)

- 2011 – 2012 Graduate Research Assistant, Institute of Behavioral Science and University of Colorado Boulder. Supervisor: Fernando Riosmena.
- 2007 – 2010 Research Associate, Geographic Information Science and Technology Group, Oak Ridge National Laboratory, Oak Ridge, TN
- 2006 – 2007 Undergraduate Research Assistant, Department of Geography, University of North Carolina at Chapel Hill. Supervisors: Martin Doyle, Lawrence Band.
- 2006 Undergraduate Research Assistant, Moche Origins Project, Peru

Service

School of Geography and Environment Science, University of Southampton

Line manager (2018-2019)

PhD Co-Supervisor: R. Taylor (2019-present)

PhD Co-Supervisor: M. Johnson (2021-present)

PhD Upgrade: J. Nieves (2018, 2019)

Office First Aider (2019 – present)

Institute of Behavioral Science, University of Colorado Boulder

Mentor for Dissertation Funding Bootcamp (2016)

Graduate research fellowship workshop mentor (AYs 2014; 2015)

CV writing workshop facilitator (2015)

Department of Geography, University of Colorado Boulder

Colloquium Committee (2014-2015)

Graduate Student Representative (2011)

Other

Session co-organizer and chair - PAA 2019 Annual Meeting, “Spatial Methods”

Session chair – American Association of Geographers.

AAG Population Specialty Group student paper competition reviewer (2019)

Volunteer Instructor to Science Olympiad Team, Oak Ridge High School, Oak Ridge, TN (AYs 2008; 2009)

Reviewer: *Health & Place*; *Computers, Environment and Urban Systems*; *BMJ Open*; *BMC International Health and Human Rights*; *International Journal of Geographical Information Science*; *Remote Sensing*; *International Journal of Epidemiology*; *Canadian Journal of Public Health*; *Data*; *International Journal of Health Geographics*; *International Journal of Medical Informatics*; *International Journal of Digital Earth*

Technical and Field Skills

Geographic Information Systems: ArcGIS; QGIS

Statistical Packages: R, Stata, working knowledge of SAS

Programming Languages: Python, Java, C#, javascript, Visual Basic/VBA

Databases: SQL Server, Access, working knowledge of PostgreSQL

Mapping: Leica Total Stations, Trimble and Garmin GPS units

International Fieldwork: First Aid, CPR, Hostile Environment Awareness Training (HEAT)

Languages: English (Native); Bengali (Conversational; beginner reading); Spanish (Beginner reading and speaking)

Professional Memberships

American Association of Geographers (Specialty groups: Health and Medical Geography; Population; Spatial Analysis and Modelling)

Population Association of America