DANIEL E. CROWLEY, PhD https://dncrwlye.github.io

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PROFESSIONAL SUMMARY

Epidemiologist with expertise in quantitative methods, infectious disease modeling, and immunology. Proven track record designing and leading projects across transdisciplinary teams spanning ecology, immunology, virology, and public health.

EDUCATION

PhD in Immunology and Infectious Diseases | **Cornell University** Courses: Machine Learning; Optimization Algorithms; Immunology; Bayesian Models; Advanced Bioinformatics
MPH in Epidemiology | **Columbia University** Courses: Probability; Epidemiology; Logistic Models; Linear Algebra

TECHNICAL SKILLS

-**Programming:** R (over 10 years), Python, SAS, STAN, Git, Linux Environments
-**Computational Methods:** Bayesian Statistics, Machine Learning, High-Performance Computing
-**Domain Expertise:** Epidemiology & Immunology
-**Bioinformatics:** NGS Analysis, BCR/TCR Sequencing, RNA-seq Analysis, Pipeline Development
-**Lab Skills:** 5' RACE, Hybridoma Development, *In vivo* Models, Flow Cytometry
-**Miscellaneous:** Adobe Illustrator, Adobe InDesign, REDCap, Excel

PROFESSIONAL EXPERIENCE

Infectious Disease Epidemiologist | University of Calgary *Sep 2025 - Present 40 hours per week*
-Applying antimicrobial resistance surveillance to healthcare and municipal settings
-Lead modeling projects integrating environmental and clinical data to track respiratory pathogens and AMR across hospitals and municipalities
-Develop hierarchical Bayesian state-space models for real-time outbreak monitoring and forecasting
-Translate model outputs into actionable guidance for public health stakeholders, informing outbreak response

Pathogen Spillover Research Scientist | Cornell University *Mar 2024 - Aug 2025 40 hours per week*
-Research focused on predicting and preventing pathogen spillover from wildlife reservoirs
-Developed novel immunological and statistical methods to identify drivers of spillover risk, resulting in three first-author publications (PLOS Biology, Journal of Animal Ecology, Proc Roy Soc B)
-Built Bayesian surveillance models to identify high-risk spillover windows from wildlife serological data
-Communicated research to diverse audiences, including international conferences and major media (The Atlantic, ABC News)

Graduate Research Assistant | Cornell University *Jan 2019 - Mar 2024 40 hours per week*
-Research on viral epidemiology and spillover prediction
-Built phylogenetic models to predict Ebola virus reservoir hosts
-Established bat colonies and experimental infection models to characterize viral shedding dynamics
-Developed B cell receptor sequencing protocols and Bayesian models of immune cell dynamics in novel species

Research Associate | MSU & Wildlife Conservation Society *Jun 2017 - Jan 2019 40 hours per week*
-Research focused on predicting pathogen spillover and disease spread in wildlife systems
-Modeled bat-to-human spillover risk for DARPA PREEMPT project and white-nose syndrome spread for DOD/DOE
-Collaborated with state agencies to forecast disease spread across Western US bat populations
-Led communication with DARPA program officers, including technical briefings, progress reports, and a site visit that contributed to securing project funding

Data Analyst | NYC Department of Health and Mental Hygiene *Jun 2016 - Jun 2017 40 hours per week*
-Supported reporting and quality assurance for NYC Early Intervention Program
-Built machine learning models to identify outlier diagnostic patterns among service providers
-Developed automated data pipelines (R, SAS, SQL) to monitor program utilization and provider performance
-Created reporting tools and visualizations to support program oversight

Researcher, Foundation for Professional Development, South Africa *Apr 2013-Dec 2013 40 hours per week*
-Evaluated notifiable disease surveillance system performance in primary healthcare settings
-Assessed healthcare worker knowledge and practices to identify gaps in notifiable disease reporting
-Delivered recommendations to South African Department of Health for surveillance system strengthening

Program Coordinator, Support for International Change, Tanzania *Aug 2011-Dec 2011 40 hours per week*
-Supervised team of 18 conducting HIV awareness and testing outreach
-Assessed HIV knowledge gaps in rural populations to inform program targeting

PRESS

2021: ABC: Researchers studying bats hope to prevent the next human pandemic
2021: All Things Health: A Bozeman Health Podcast "What is Epidemiology?"
2020: The Atlantic: How Bats Might Have Tamed the Coronavirus

CONFERENCES & TALKS

2025 Pathogen and Microbiome Institute Northern Arizona University (Invited Seminar)
2024 Ecology and Evolution of Infection Diseases Stanford University (Poster)
2023 International Veterinary Immunology Symposium Kruger National Park South Africa (Invited Keynote Talk, declined; gave session talk)
2023 National Institute of Health Rocky Mountain Lab Hamilton Montana (Invited Seminar)
2023 Global Alliance for Immune Prediction and-Intervention Invited speaker for viral pandemics series (Invited Seminar)
2023 Ecology and Evolution of Infection Diseases (Poster)
2022 3rd International Symposium on Infectious Diseases of Bats (Poster)
2022 19th International Bat Research Conference & North American Symposium on Bat Research (Invited Talk, Declined)
2021 Occidental College Biology Department Seminar (Invited Seminar)

PUBLICATIONS

Crowley, D.E., C.A. Falvo, C.K. Grant, T.J. Lunn, D.J. Jones, T. Bushmaker, A.S. Dale, E. Benson, B. Borremans, D.J. Becker, C.D. McKee, Y.T. Yu, M. Ruiz-Aravena, M. Michie, I. Smith, L.B. Goodman, V.J. Munster, Bat One Health Team, A.R. Apple, A.J. Peel, R.K. Plowright. Journal of Animal Ecology, 2025. In Press.

Yinda, C.K., J-S. Eden, E. Prates, A. Vlot, S. Anzick, J. Wang, K. Halpin, B. Borremans, T. Lunn, K. Barbian, B. Greene, K. Meade-White, T. Bushmaker, C. Falvo, **D. Crowley**, D. Jones-Slobodian, M. Shah, M. Pavicic, W. Carr, C. Martens, D. Jacobson, R. Plowright, A. Peel, V. Munster. Nature Microbiology, 2025. In Press.

Peel, A.J., M. Ruiz-Aravena, K. Kim, B. Scherting, C.A. Falvo, **D.E. Crowley**, V.J. Munster, E.J. Annand, K. Plain, D.N. Jones-Slobodian, T.J. Lunn, A.S. Dale, A. Hoegh, J-S. Eden, R.K. Plowright. Nature Communications, 2025.

Verrett, T.B., C.A. Falvo, E. Benson, D.N. Jones-Slobodian, **D.E. Crowley**, A.S. Dale, T.J. Lunn, M. Ruiz-Aravena, A. Rynda-Apple, C.D. McKee, K.L. Clark, A.W. Gofton, Bat One Health, A.J. Peel, R.K. Plowright, D.J. Becker. Emerging Infectious Diseases, 2025. doi:10.3201/eid3107.241864

Vanalli, C., C.A. Falvo, **D. Crowley**, B. Schwarz, R. Plowright, P.J. Hudson, et al. Proceedings of the Royal Society B, 2025. doi:10.1098/rspb.2025.0547

van Tol, S., J.R. Port, R.J. Fischer, S. Gallogly, T. Bushmaker, A. Griffin, J.E. Schulz, A. Carmody, L. Myers, **D.E. Crowley**, C.A. Falvo, J.C. Riopelle, A. Wickenhagen, C. Clancy, J. Lovaglio, C. Shaia, G. Saturday, J. Prado-Smith, Y. He, J. Lack, C. Martens, S.L. Anzick, L. Kendall, T. Schountz, R. Plowright, A. Marzi, V.J. Munster. Nature Communications, 2024.

[1]Falvo, C.A., [1]**D.E. Crowley**, E. Benson, M.N. Hall, B. Schwarz, E. Bohrnsen, M. Hebner, M. Ruiz-Aravena, T. Schountz, W. Ma, A.R. Apple, R.K. Plowright. Proceedings of the Royal Society B, 2025. ([1]co-first authors)

Crowley, D., C.A. Falvo, E. Benson, J. Hedges, M. Jutila, S. Ezzatpour, H. Aguilar-Carreno, M. Ruiz-Aravena, W. Ma, T. Schountz, A. Rynda-Apple, R.K. Plowright. PLOS Biology, 2024.

Borremans, B., C.A. Falvo, **D.E. Crowley**, A. Hoegh, J.O. Lloyd-Smith, A.J. Peel, O. Restif, M. Ruiz-Aravena, R.K. Plowright. Peer Community Journal, 2024.

Hashimi, M., T.A. Sebrell, J.F. Hedges, D. Snyder, K.N. Lyon, S.D. Byrum, S.G. Mackintosh, **D. Crowley**, M.D. Cherne, D. Skwarchuk, et al. Nature Communications, 2023. doi:10.1038/s41467-023-42610-x

Ruiz-Aravena, M., C. McKee, A. Gamble, T. Lunn, A. Morris, C.E. Snedden, C.K. Yinda, J.R. Port, D.W. Buchholz, Y.Y. Yeo, C. Faust, E. Jax, L. Dee, D.N. Jones, M.K. Kessler, C. Falvo, **D. Crowley**, N. Bharti, C.E. Brook, H.C. Aguilar, A.J.

Peel, O. Restif, T. Schountz, C.R. Parrish, E.S. Gurley, J.O. Lloyd-Smith, P.J. Hudson, V.J. Munster, R.K. Plowright. Nature Reviews Microbiology, 2021.

McClure, M.L., C.G. Haase, **D. Crowley**, C.R. Hranac, D.T.S. Hayman, L.P. McGuire, B.G. Dickson, N.W. Fuller, R.K. Plowright, C.L. Lausen, S.H. Olson. Journal of Biogeography, 2025.

McClure, M.L., **D. Crowley**, C.G. Haase, L.P. McGuire, N.W. Fuller, D.T.S. Hayman, C.L. Lausen, R.K. Plowright, B.G. Dickson, S.H. Olson. Ecosphere, 2025. In Press.

Crowley, D., D. Becker, A. Washburne, R. Plowright. Vaccines, 2020. doi:10.3390/vaccines8020228

Becker, D., **D. Crowley**, A. Washburne, R.K. Plowright. Biology Letters, 2019. doi:10.1098/rsbl.2019.0423

Plowright, R.K., D.J. Becker, **D.E. Crowley**, A.D. Washburne, T. Huang, P.O. Nameer, E.S. Gurley, B.A. Han. PLOS Neglected Tropical Diseases, 2019. doi:10.1371/journal.pntd.0007393

Washburne, A.D., **D.E. Crowley**, D.J. Becker, K.R. Manlove, M.L. Childs, R.K. Plowright. Philosophical Transactions of the Royal Society B, 2019. doi:10.1098/rstb.2018.0331

Washburne, A.D., J.D. Silverman, J.T. Morton, D.J. Becker, **D. Crowley**, S. Mukherjee, L.A. David, R.K. Plowright. Ecological Monographs, 2019. doi:10.1002/ecm.1353

Washburne, A.D., **D.E. Crowley**, D.J. Becker, K.J. Olival, M. Taylor, V.J. Munster, R.K. Plowright. PeerJ, 2018. doi:10.7717/peerj.5979

Kessler, M.K., D.J. Becker, A.J. Peel, N.V. Justice, T. Lunn, **D.E. Crowley**, D.N. Jones, P. Eby, C.A. Sanchez, R.K. Plowright. Annals of the New York Academy of Sciences, 2018. doi:10.1111/nyas.13910

IN REVIEW

T.J. Lunn, B. Borremans, **D.E Crowley**, A.S. Dale, P. Eby, C.A. Falvo, A. Gamble, P.J. Hudson, D.N. Jones, J.O. Lloyd-Smith, H. McCallum, L. McGuire, V.J. Munster, O. Restif, M. Ruiz-Aravena, I. Smith, C.K. Yinda, R.K Plowright, & A.J. Peel. Periodic shifts in viral load excretion may increase risk of spillover from bats. In review at Lancet Planetary Health.

AWARDS

2023 Andrew Kligerman Travel Award $1,000
2020 Faculty Excellence Grant, Montana State University (co-authored grant application): $5,000
2019 Clinic on Dynamical Approaches to Infectious Disease Data 30,000 Rand
2015 Mailman Scholar $16,000
2013 Richter Scholar $10,000