

DANIEL K. SEWELL

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University of Iowa
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EDUCATION

2010-2015	University of Illinois at Urbana-Champaign PhD, Statistics Advisor: Professor Yuguo Chen Dissertation Title: Statistical Models and Inference for Dynamic Networks
2008-2010	University of Arkansas MS, Statistics
2002-2006	Harding University, Searcy, AR BA, Education

RESEARCH INTERESTS

Social network analysis	Statistical computing	Applied scientific problems
Clustering	Monte Carlo methodology	
Bayesian methodology	Data visualization	

POSITIONS

2021-Present	University of Iowa Associate Professor, Department of Biostatistics	Iowa City, IA
2015-2021	University of Iowa Assistant Professor, Department of Biostatistics	Iowa City, IA
2020-Present	University of Iowa Faculty Affiliate at the UI Public Policy Center	Iowa City, IA

PUBLICATIONS

- (1) Devotta, D. A., Fraterrigo, J. M., Walsh, P. B., Lowe, S., Sewell, D. K., Schindler, D. E., and Hu, F. S. (2021). Watershed *Alnus* cover alters N:P stoichiometry and intensifies P limitation in subarctic streams. *Biogeochemistry* 153, 155–176.
- (2) Justice, S., Sewell, D., and Miller, A. (2021). Inferring patient transfer networks between healthcare facilities. *Health Serv Outcomes Res Method.*
- (3) Li, H., and Sewell, D. K. (2021). A comparison of point estimators for the network autocorrelation model based on observed social networks. *Social Networks* 66, 202–210.
- (4) Zhang, Y., Zhou, J., Gehl, C. R., Long, J. D., Johnson, H. J., Magnotta, V., Sewell, D. K., Shannon, K., and Paulsen, J. S. (2021). Mild cognitive impairment as an early landmark in Huntington Disease. *Frontiers in Neurology*, In press.
- (5) Daniel-Ulloa, J., Baquero, B., Kava, C. M., Coronado Garcia, M. L., Novak, N., Sewell, D., Maldonado, A., Haines, H. L., Gates, C., and Parker, E. A. (2020). Demographic, psychosocial and perceived environmental factors associated with depression severity in a midwest micropolitan community. *Health Behavior Research* 3.

- (6) Jang, H., Polgreen, P. M., Segre, A. M., Sewell, D. K., and Pemmaraju, S. V. (2020). A data-driven approach to identifying asymptomatic *C. diff* cases. *The 3rd annual International Workshop on Epidemiology meets Data Mining and Knowledge Discovery (epiDAMIK) 2020*.
- (7) Miller, A., Segre, A., Pemmaraju, S., Sewell, D., and Polgreen, P. (2020). Association of household exposure to primary *Clostridioides difficile* infection with secondary infection in family members. *JAMA Network Open* 3.
- (8) Miller, A. C., Sewell, D. K., Segre, A. M., Pemmaraju, S. V., and Polgreen, P. M. (2020). Risk for *Clostridioides difficile* Infection Among Hospitalized Patients Associated With Multiple Healthcare Exposures Prior to Admission. *The Journal of Infectious Diseases*.
- (9) Miller, A., Segre, A., Sewell, D., Pemmaraju, S., and Polgreen, P. (2020). Risk of Hospital-Onset *C. difficile* Infection Increases With Prior Inpatient and Outpatient Visits. *Infection Control & Hospital Epidemiology* 41, s78–s79.
- (10) Pai, S., Pemmaraju, S., Polgreen, P., Segre, A., and Sewell, D. (2020). Spatiotemporal clustering of in-hospital *Clostridioides difficile* infection (CDI). *Infection Control and Hospital Epidemiology* 41, 418–424.
- (11) Polgreen, L. A., Carter, B. L., Polgreen, P. M., Snyder, P. M., Sewell, D. K., Bayman, E. O., Francis, S. L., Simmering, J. E., Parker, C., and Finkelstein, R. (2020). A pharmacist intervention for monitoring and treating hypertension using bidirectional texting: PharmText BP. *Contemporary Clinical Trials* 98, 106169.
- (12) Sewell, D. K. (2020). Model-based edge clustering. *Journal of Computational and Graphical Statistics*, In press.
- (13) Sewell, D. K., and Miller, A. (2020). Simulation-free estimation of an individual-based SEIR model for evaluating nonpharmaceutical interventions with an application to COVID-19 in Iowa. *PLOS One* 15, e0241949.
- (14) Sewell, D. K., Penney, J., Jay, M., Zhang, Y., and Paulsen, J. S. (2020). Predicting an optimal composite outcome variable for Huntington’s disease clinical trials. *Journal of Applied Statistics*, In press. DOI: 10.1080/02664763.2020.1759034.
- (15) Dow, A., Sewell, D. K., Lockeman, K., and Micalizzi, E. (2019). Evaluating a center for interprofessional education via network analysis. *Academic Medicine* 95, 207–212.
- (16) Jang, H., Justice, S., Polgreen, P. M., Segre, A. M., Sewell, D. K., and Pemmaraju, S. V. (2019). Evaluating architectural changes to reduce infection spread in a dialysis unit. *International Conference on Advances in Social Networks Analysis and Mining '19*.
- (17) Kava, C. M., Parker, E. A., Baquero, B., Curry, S. J., Gilbert, P. A., Sauder, M., and Sewell, D. K. (2019). Associations between organizational culture, workplace health climate, and employee smoking at smaller workplaces. *Tobacco Use Insights* 12.
- (18) Medgyesi, D., Sewell, D. K., Senesac, R., Cumming, O., Mumma, J., and Baker, K. K. (2019). The landscape of enteric pathogen exposure for children during play in public domains of low-income, Kisumu, Kenya. *PLOS Neglected Tropical Diseases* 13, e0007292.
- (19) Sewell, D. K. (2019). Analysis of network interventions with an application to hospital acquired infections. *Statistics in Medicine* 38, doi:10.1002/sim.8373, 5376–5390.
- (20) Sewell, D. K. (2019). Latent space models for network perception data. *Network Science* 7, 160–179.
- (21) Sewell, D. K. (2019). Multilinear tests of association between networks. *Proceedings of the Meeting of the Classification and Data Analysis Group '19*.
- (22) Sewell, D. K., Simmering, J. E., Justice, S., Pemmaraju, S. V., Segre, A. M., and Polgreen, P. M. (2019). Estimating the attributable disease burden and effects of inter-hospital patient sharing on *Clostridium difficile* infections. *Infection Control and Hospital Epidemiology* 40, 656–661.

- (23) Zhu, X., Tu, S.-P., Sewell, D. K., Yao, N., Mishra, V. K., Dow, A., and Banas, C. (2019). Measuring electronic communication networks in virtual care teams using electronic health records access-log data. *International Journal of Medical Informatics* 128, 46–52.
- (24) Anthony, C. A., Peterson, R. A., Sewell, D. K., Polgreen, L. A., Simmering, J. E., Callaghan, J. J., and Polgreen, P. M. (2018). The seasonal variability of surgical site infections in knee and hip arthroplasty. *The Journal of Arthroplasty* 33, 510–514.e1.
- (25) Ashida, S., Sewell, D. K., Schafer, E. J., Schroer, A., and Friberg, J. (2018). Social network members who engage in activities with older adults: do they bring more social benefits than other members? *Ageing and Society*, 1–20.
- (26) Baker, K. K., Senesac, R., Sewell, D. K., Sen Gupta, A., Cumming, O., and Mumma, J. (2018). Fecal fingerprints of enteric pathogen contamination in low-income neighborhoods of Kisumu, Kenya: The role of human and domestic animal sources in environmental pathogen contamination patterns. *Environmental Science & Technology* 52, 10263–10274.
- (27) Baquero, B., Kava, C. M., Ashida, S., Daniel-Ulloa, J., Laroche, H. H., Haines, H., Bucklin, R., Maldonado, A., Garcia, M. C., Berto, S., Sewell, D., Novak, N., Janz, K., Gates, C., and Parker, E. A. (2018). Active Ottumwa: Adapting evidence-based recommendations to promote physical activity in a micropolitan new destination community. *International Journal of Environmental Research and Public Health* 15.
- (28) Kava, C. M., Parker, E. A., Baquero, B., Curry, S. J., Gilbert, P. A., Sauder, M., and Sewell, D. K. (2018). A qualitative assessment of the smoking policies and cessation activities at smaller workplaces. *BMC Public Health* 18, 1094.
- (29) Kava, C. M., Parker, E. A., Baquero, B., Curry, S. J., Gilbert, P. A., Sauder, M., and Sewell, D. K. (2018). Organizational culture and the adoption of anti-smoking initiatives at small to very small workplaces: An organizational level analysis. *Tobacco Prevention & Cessation* 4.
- (30) Medgyesi, D. N., Brogan, J. M., Sewell, D. K., Creve-Coeur, J. P., Kwong, L. H., and Baker, K. K. (2018). Where children play: Young child exposure to environmental hazards during play in public areas in a transitioning internally displaced persons community in Haiti. *International Journal of Environmental Research and Public Health* 15, 1646.
- (31) Metcalf, K. M., Baquero, B. I., Coronado Garcia, M. L., Francis, S. L., Janz, K. F., Laroche, H. H., and Sewell, D. K. (2018). Calibration of the global physical activity questionnaire to accelerometry measured physical activity and sedentary behavior. *BMC Public Health* 18, 412.
- (32) Sewell, D. K. (2018). Simultaneous and temporal autoregressive network models. *Network Science* 6, 204–231.
- (33) Sewell, D. K. (2018). Visualizing data through curvilinear representations of matrices. *Computational Statistics & Data Analysis* 128, 255–270.
- (34) Anthony, C., Peterson, R., Polgreen, L. A., Sewell, D. K., and Polgreen, P. M. (2017). The seasonal variability in surgical site infections and association with warmer weather: a population-based investigation. *Infection Control & Hospital Epidemiology* 38, 809–816.
- (35) Bernhard, W., Sewell, D. K., and Sulkin, T. (2017). A clustering approach to legislative styles. *Legislative Studies Quarterly* 42, 477–506.
- (36) Dow, A. W., Zhu, X., Sewell, D. K., Banas, C. A., Mishra, V., and Tu, S.-P. (2017). Teamwork on the rocks: Rethinking interprofessional practice as networking. *Journal of Interprofessional Care* 31, PMID: 28792251, 677–678.
- (37) Peterson, R., Polgreen, L. A., Sewell, D. K., and Polgreen, P. M. (2017). Warmer weather as a risk factor for cellulitis: a population-based investigation. *Clinical Infectious Diseases* 65, 1167–1173.
- (38) Sewell, D. K. (2017). Heterogeneous susceptibilities in social influence models. *Social Networks* 52, 135–144.

- (39) Sewell, D. K. (2017). Network autocorrelation models with egocentric data. *Social Networks* 49, 113–123.
- (40) Sewell, D. K., and Chen, Y. (2017). Latent space approaches to community detection in dynamic networks. *Bayesian Analysis* 12, 351–377.
- (41) Simmering, J. E., Polgreen, L. A., Hornick, D. B., Sewell, D. K., and Polgreen, P. M. (2017). Weather-dependent risk for Legionnaires’ Disease, United States. *Emerging Infectious Diseases* 23, 1843–1851.
- (42) Sewell, D. K., and Chen, Y. (2016). Latent space models for dynamic networks with weighted edges. *Social Networks* 44, 105–116.
- (43) Sewell, D. K., Chen, Y., Bernhard, W., and Sulkin, T. (2016). Model-based longitudinal clustering with varying cluster assignments. *Statistica Sinica* 26, 205–233.
- (44) Sewell, D. K., and Chen, Y. (2015). Analysis of the formation of the structure of social networks by using latent space models for ranked dynamic networks. *Journal of the Royal Statistical Society: Series C (Applied Statistics)* 64, 611–633.
- (45) Sewell, D. K., and Chen, Y. (2015). Latent space models for dynamic networks. *Journal of the American Statistical Association* 110, 1646–1657.
- (46) Sewell, D. K., Kim, H., Ha, T., and Ma, P. (2015). A parameter estimation method for fluorescence lifetime data. *BMC Research Notes* 8, 230.

AWARDS

2019	International Symposium on Network Enabled Health Informatics, Biomedicine and Bioinformatics Best Paper Award
2017	Junior Faculty Research Opportunity Award, College of Public Health, University of Iowa
2015	New Faculty Research Award, College of Public Health, University of Iowa
2015	University of Illinois nomination for CGS/ProQuest Distinguished Dissertation Award (limit 1 nomination per university)
2014	Patrick J. Fett award for the best paper on the scientific study of Congress and the presidency
2014	Finalist for the Norton Prize for Outstanding Doctoral Thesis in Statistics
2014	University of Illinois Graduate College Travel Award
2007	Outstanding Calculus Award, Harding University

SOFTWARE

Author of R packages `dnc`, `STAR`, `curveRep`, `LSMNP`, `LSEC`, `marginalMeans`

GPAQ calibration web application

University of Iowa COVID-19 Nonpharmaceutical Intervention Evaluation Web Application

TEACHING EXPERIENCE

–INSTRUCTOR–

		<i>TERMS</i>
		<i>INSTRUCTED</i>
University of Iowa	BIOS 5710: Biostatistical Methods I	3
	BIOS 5720: Biostatistical Methods II	4
	BIOS 6810: Bayesian Methods and Design	3
	BIOS 7600: Statistical Analysis of Network Data	1
University of Illinois	STAT 200: Statistical Analysis	1
University of Arkansas	STAT 2303: Principles of Statistics	1
	MATH 2043: Survey of Calculus	1
	MATH 1203: College Algebra	2

ADVISING

PhD Advisor	Elliot Burghardt	Biostatistics
	Haomin Li	Biostatistics
	Hannah Pham	Biostatistics
Committee member	Brandon Butcher	Biostatistics
	Christine Kava	Community and Behavioral Health
	Samuel Justice	Statistics and Actuarial Science
	Seungwon Kim	Geographical and Sustainability Sciences
	Adriana Maldonado	Community and Behavioral Health
	Kyle Peterson	Interdisciplinary Graduate Program in Informatics
	Michael Seedorff	Biostatistics
	Caitlin Ward	Biostatistics

EDITORIAL BOARDS

Journal of the American Statistical Association	Associate Editor
Journal of Data Science	Guest editor for “Advances in network data science”

FINANCIAL SUPPORT

–ACTIVE–

- (PI) Statistical and Agent-based Modeling of Complex Microbial Systems: A Means for Understanding Enteric Disease Transmission Among Children in Urban Neighborhoods of Kenya (Recently Awarded by NIH/Fogarty International Center, # not yet assigned)
- University of Iowa COVID-19 Flex Funding Award
- Grinnell College & U. Iowa Residential College/Schools Prevention and Control of SARS-CoV-2
- Modeling Infectious Diseases in Healthcare research Projects to Improve Prevention Research and Healthcare Delivery (Recently Awarded by CDC, # not yet assigned)
- Connected Cancer Care: EHR Communication Networks in Virtual Cancer Care Teams (1 R21 HS026075-01A1)
- Care Coordination Networks (UI Public Policy Center Summer Scholars Project)
- A Pharmacist Intervention for Monitoring and Treating Hypertension Using Bidirectional Texting (1 R61 HL144880-01A1)
- University of Iowa Prevention Research Center for Rural Health (5 U48 DP005021-05; 6 U48 DP006389-02)
- Contact Network Transmission Modeling of Healthcare Associated Infections (5 U01 CK000531-02)
- Statistical Disease Modeling and Clinimetrics to Prepare for Preventive Trials in Huntington Disease (5 R01 NS103475-02)
- Preparing for Preventive Clinical Trials in Huntington’s Disease (1 R01 NS105509-01)
- Market to Mouth Infant Food Contamination Study: A Collaboration between the Safe Start Study and IFPRI (2018X134.UOI)
- Iowa Summer Institute for Research Education in Biostatistics (1 R25 HL147231-01)

–COMPLETED–

- New Faculty Research Award
- Junior Faculty Research Opportunity Award
- e-Health (82154300)

PRESENTATIONS

–INVITED TALKS–

- 2021 “Model-based edge clustering,” at the Summer Session of the Working Group on Model-Based Clustering, Athens, Greece
- 2020 “Model-based edge clustering,” at the University of Iowa, Department of Statistics
- 2020 “Facing the Facts: The Role of Face Coverings in Containing COVID-19” College of Public Health webinar on face coverings
- 2020 “Understanding, Predicting and Planning for Resilience- Epidemiologic Modeling,” Office of the Vice President for Research Webinar on COVID-19
- 2020 “Mining Social Network Data - EDA & Visualization ,” ASA Statistical Learning and Data Science Section webinar series “Introductory Overview Lectures in Data Science”
- 2019 “Model-based edge clustering,” at Shambaugh Conference on International Relations and Network Analysis, University of Iowa
- 2019 “Multilinear tests of association between two networks,” at Classification and Data Analysis Group Meeting, Cassino, Italy
- 2019 “An introduction to the statistical analysis of network data,” at Sapienza, Università di Roma
- 2019 “Network analysis: Applications and extant challenges,” at the University of Iowa, Department of Applied Mathematical and Computational Sciences
- 2018 “Heterogeneous susceptibilities in network influence models,” at CMStatistics, Pisa, Italy
- 2018 “Estimating the attributable disease burden and effects of inter-hospital patient sharing on *Clostridium difficile* infections in California,” at the International Conference on Emerging Infectious Diseases, Atlanta, GA
- 2017 “Simultaneous and temporal autoregressive network models,” at Iowa State University, Department of Statistics
- 2017 “Statistical analysis of networks in bioinformatics: Getting the right data,” Informatics Showcase, University of Iowa
- 2017 “Measuring electronic communication networks in virtual healthcare teams using electronic health records ccess-log data,” with Zhu X, Tu SP, Hall L, Mishra V, Yao A, Dow A, and Banas C., at *INSNA Sunbelt Conference*, Beijing, China
- 2017 “The effects of analyzing subsets of hospital patient transfer networks” at the University of Iowa, Department of Geographical and Sustainability Sciences
- 2016 “Clustering dynamic and evolving data” at the University of Iowa, Department of Biostatistics
- 2016 “Clustering dynamic and evolving data” at the University of Iowa, Department of Political Science
- 2016 ”Simultaneous and temporal autoregressive network models,” at *INSNA Sunbelt Conference*, Newport Beach, CA
- 2016 “Social network analysis,” at the Center for Comprehensive Access And Delivery Research And Evaluation
- 2015 “Latent space models for dynamic networks,” at the University of Iowa, Department of Statistics and Actuarial Science
- 2015 “Latent space models for dynamic networks,” at the University of Iowa, Department of Computer Science
- 2015 “Analysis of the formation of the structure of social networks,” at *17th Meeting of New Researchers in Statistics and Probability*, Seattle, WA
- 2015 “Latent space models for dynamic networks,” at Texas A&M
- 2015 “Latent space models for dynamic networks,” at Duke University
- 2015 “Latent space models for dynamic networks,” at the University of Michigan
- 2015 “Latent space models for dynamic networks,” at the University of Missouri
- 2015 “Latent space models for dynamic networks,” at Notre Dame University
- 2015 “Latent space models for dynamic networks,” at the University of Alberta
- 2015 “Latent space models for dynamic networks,” at the University of Colorado, Denver

- 2015 | “Latent space models for dynamic networks,” at Portland State University
- 2015 | “Latent space models for dynamic networks,” at University of Iowa, Department of Biostatistics
- 2015 | “Latent space models for dynamic networks,” at Binghamton University
- 2015 | “Latent space models for dynamic networks,” at Miami University
- 2014 | “Legislative style,” with W. Bernhardt and T. Sulkin, *Annual Meeting of the Midwest Political Science Association*, Chicago, IL
- 2014 | “Latent space models for dynamic networks,” *Midwest Statistics Research Colloquium*, Chicago, IL

–INVITED POSTERS–

- 2020 | “Estimating the Impact of County Boundaries on State-wide Patient-sharing Network Models,” at *Decennial 2020: 6th International Conference on Healthcare Associated Infections*, Atlanta, GA
- 2020 | “Exploring the Potential Limitations of Using Medicare Data to Study the Spread of Infections from Hospital Transfers,” at *Decennial 2020: 6th International Conference on Healthcare Associated Infections*, Atlanta, GA

–CONTRIBUTED TALKS–

- 2016 | "Simultaneous and temporal autoregressive network models," at *Joint Statistical Meetings*, Chicago, IL
- 2015 | "Analysis of the formation of the structure of social networks," at *Joint Statistical Meetings*, Seattle, WA
- 2014 | "Detecting influence in dynamic networks," *Joint Statistical Meetings*, Boston, MA
- 2014 | "Community detection for dynamic networks," *Bohrer Workshop in Statistics*, Department of Statistics, University of Illinois at Urbana-Champaign
- 2013 | "Latent space models for dynamic networks," *Bohrer Workshop in Statistics*, Department of Statistics, University of Illinois at Urbana-Champaign
- 2011 | "A parameter estimation method for single molecule fluorescence lifetime data," *Bohrer Workshop in Statistics*, Department of Statistics, University of Illinois at Urbana-Champaign

–WORKSHOPS–

- 2020 | Webinar on "Introductory Overview Lectures in Social Networks" through the American Statistical Association Web-Based Lectures
- 2019 | Short course "Introduction to statistical analysis of network data" at Sapienza Università di Roma
- 2019 | Short course "Networks in R" at *University of Iowa Data Science Institute* (Summer)
- 2017 | Short course "Networks in R" at *University of Iowa Data Science Institute* (Summer)
- 2017 | Short course "Introduction to R" at *University of Iowa Data Science Institute* (Winter)
- 2016 | Workshop on "Introduction to R," at *Informatics Showcase*, University of Iowa

REFEREED JOURNALS

Annals of Applied Statistics

Bayesian Analysis

Biometrics

BMJ Open

Computational Statistics and Data Analysis

Communications in Statistics

Expert Systems with Applications

Extremes

JAMA Network Open

Journal of Allergy and Clinical Immunology

Journal of the American Statistical Association T&M

Journal of the American Statistical Association A&CS

Journal of Computational and Graphical Statistics

Journal of Econometrics

Journal of Educational and Behavioral Statistics

Journal of Multivariate Analysis

Journal of the Royal Statistical Society, Series A

Journal of the Royal Statistical Society, Series B

Journal of the Royal Statistical Society, Series C

Multivariate Behavioral Research

Network Science

National Science Foundation

PLOS One

Polish National Science Centre

Psychometrika

Social Networks

Statistics and Computing

Statistics and Its Interface

PROFESSIONAL ACTIVITIES

2018-present	Biostatistics Colloquium Committee (Chair)
2018-present	Chapter representative of the Iowa Chapter of the American Statistical Association
2016-2018, 2020	Faculty mentor for the Iowa Summer Institute in Biostatistics at the University of Iowa
2016-2017	Member of faculty search committee for the Department of Biostatistics at the University of Iowa
2015-2018	Member of the advanced statistical computing course exploratory committee for the Department of Biostatistics at the University of Iowa
2015-present	Member of M.S. Exam Committee for the Department of Biostatistics at the University of Iowa
2015-present	Member of the computing committee for the Department of Biostatistics at the University of Iowa
2015-2018	Member of graduate admissions committee for the Department of Biostatistics at the University of Iowa
2015-present	Member of the awards committee for the College of Public Health at the University of Iowa
2015-2016	Member of student paper award committee of the ASA nonparametric statistics section
2016	College of Public Health representative and member of the Hancher-Finkbine dinner medallion selection committee at the University of Iowa

PROFESSIONAL ASSOCIATIONS

International Network for Social Network Analysis

American Statistical Association

Institute of Mathematical Statistics

International Society for Bayesian Analysis