

**Aditya S. Khanna, Ph.D.**

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The University of Chicago  
Biological Sciences Division, Medicine  
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**Summary**

As a computational epidemiologist, I direct a multidisciplinary team that develops biosocial network models to inform policies to increase population health equity. My substantive research is in reducing HIV/STI incidence in sexual and gender minority communities, and increasing breast cancer screening among African American women. I use a combination of agent-based modeling, network analysis, and advanced predictive methods, and I disseminate research results across academic, governmental and community-based stakeholders.

**Education**

|                         |  |
|-------------------------|--|
| <b>Ph.D.</b><br>12/2012 | <b>University of Washington</b><br>Quantitative Ecology and Resource Management (QERM)<br>Dissertation: "Bio-Behavioral Models for HIV Prevention" |
| <b>M.S.</b><br>12/2011  | <b>University of Washington</b><br>Statistics  |
| <b>M.S.</b><br>08/2009  | <b>University of Washington</b><br>Quantitative Ecology and Resource Management (QERM)   |
| <b>B.S.</b><br>05/2005  | <b>Moravian College</b><br>Mathematics; self-designed major in Physics and Political Science<br>Honors in Mathematics and Physics                  |

**Appointments**

|                 |  |
|-----------------|--|
| 10/2017-present | <b>The University of Chicago, Department of Medicine</b><br>Research Assistant Professor |
| 02/2016-present | Faculty affiliate at Third Coast Center for AIDS Research                                |
| 07/2015-present | Director of Network Modeling, Chicago Center for HIV Elimination                         |
| 07/2015-09/2017 | Staff Scientist  |
| 08/2014-07/2015 | Postdoctoral Scholar   |
| 01/2013-07/2014 | <b>University of Washington (UW)</b><br>Senior Fellow, Department of Global Health       |
| 06/2009-12/2012 | Research Assistant, Center for Studies in Demography & Ecology                           |

## Peer-Reviewed Publications

### *Manuscripts under review*

1. **Khanna AS**, Ozik J, Collier N, Hotton A, Skwara A, Ramachandran A, Mahdavi Ardestani B, Cronin M, Issema R, Cunningham W, Fujimoto K, Harawa N, Schneider JA. Triangulation of modeling approaches to formulate the “Getting to Zero” Strategy in Illinois, USA. *Journal of the International AIDS Society*.

### *Peer reviewed and published*

2. Young LE, Ramachandran A, Schumm P, **Khanna, A**, Schneider, JA. (forthcoming) The potential of online social networking data for augmenting the study of high-risk personal networks among young men who have sex with men at- risk for HIV. *Social Networks*. Available Online. <https://doi.org/10.1016/j.socnet.2020.06.003>
3. Duncan DT, Hickson DA, Goedel WC, Callander D, Brooks B, Chen YT, Hanson H, Eavou R, **Khanna AS**, Chaix B, Regan SD, Wheeler DP, Mayer KH, Safren SA, Carr Melvin S, Draper C, Magee-Jackson V, Brewer R, Schneider JA. The Social Context of HIV Prevention and Care Among Black Men Who Have Sex With Men in Three U.S. Cities: The Neighborhoods and Networks (N2) Cohort Study. *Int J Environ Res Public Health*. 2019 May 30;16(11):1922. doi: 10.3390/ijerph16111922.
4. Hotton AL, Chen YT, Schumm P, **Khanna AS**, Brewer R, Skaathun B, Issema RS, Ramani S, Ramachandran A, Ozik J, Fujimoto K, Harawa NT, Schneider JA. Socio-Structural and Neighborhood Predictors of Incident Criminal Justice Involvement in a Population-Based Cohort of Young Black MSM and Transgender Women. *J Urban Health*. 2020 Mar 16. doi: 10.1007/s11524-020-00428-8.
5. Chen YT, Issema R, Mahdavi Ardestani B, Hotton A, **Khanna AS**, Schneider J, Rudolph A. Sex partner behavior variation related to network position of and residential proximity to sex partners among young black men who have sex with men. *AIDS and Behavior*. *AIDS Behav*. 2020 Jan 22. doi: 10.1007/s10461-020-02792-7.
6. **Khanna AS\***, Schneider JA\*, Collier N, Ozik J, Issema R, Di Paola A, Skwara A, Ramachandran A, Webb J, Brewer R, Cunningham W, Hilliard C, Ramani S, Fujimoto K, Harawa N. A modeling framework to inform PrEP initiation and retention scale-up in the context of Getting to Zero Initiatives. *AIDS*. 2019 Oct 1;33(12):1911-1922. doi: 10.1097/QAD.0000000000002290.
7. Molina Y, **Khanna AS**, Watson KS, Villines D, Bergeron N, Strayhorn S, Strahan D, Skwara A, Cronin M, Mohan P, Walton S, Wang T, Schneider JA, & Calhoun EA. 2019. Leveraging

system sciences methods in clinical trial evaluation: An example concerning African American women diagnosed with breast cancer via the Patient Navigation in Medically Underserved Areas Study. *Contemp Clin Trials Commun*. 2019 Jul 19;15:100411. doi: 10.1016/j.conctc.2019.100411. eCollection 2019 Sep.

8. Chen YT, Issema RS, **Khanna AS**, Pho MT, Schneider JA, The UConnect Study Team. Prescription Opioid Use in a Population-Based Sample of Young Black Men Who Have Sex with Men: A Longitudinal Cohort Study. *Subst Use Misuse*. 2019 Jun 14:1-10. doi: 10.1080/10826084.2019.1625400.
9. Duncan DT, Hickson DA, Goedel WC, Callander D, Brooks B, Chen YT, Hanson H, Eavou R, **Khanna AS**, Chaix B, Regan SD, Wheeler DP, Mayer KH, Safren SA, Carr Melvin S, Draper C, Magee-Jackson V, Brewer R, Schneider JA. The Social Context of HIV Prevention and Care among Black Men Who Have Sex with Men in Three U.S. Cities: The Neighborhoods and Networks (N2) Cohort Study. *Int J Environ Res Public Health*. 2019 May 30;16(11). pii: E1922. doi: 10.3390/ijerph16111922.
10. Harawa N, Brewer R, Buckman V, Ramani R, **Khanna A**, Fujimoto K, Schneider JA. HIV, Sexually Transmitted Infection, and Substance Use Continuum of Care Interventions Among Criminal Justice–Involved Black Men Who Have Sex With Men: A Systematic Review. *Am J Public Health*. 2018 Nov;108(S4):e1-e9. doi: 10.2105/AJPH.2018.304698.
11. **Khanna AS**, Goodreau SM, Michaels S, Schneider JA. Using Partially-Observed Facebook Networks to Develop a Peer-Based HIV Prevention Intervention: Case Study. *J Med Internet Res*. 2018 Sep 14;20(9):e11652. doi: 10.2196/11652.
12. Gore D, Ferreira M, **Khanna AS**, Schneider JA. HIV Partner Notification Services among a Representative Sample of Young Black Men Who Have Sex With Men Demonstrates Limited Service Offering and Potential Benefits of Clinic Involvement. *Sex Transm Dis*. 2018 Feb 13. doi: 10.1097/OLQ.0000000000000806.
13. Skaathun B, **Khanna AS**, Morgan E, Friedman S, Schneider JA. Network Viral Load: A Critical metric for HIV elimination. *Journal of the Acquired Immune Deficiency Syndromes*. 2017 Nov 2. doi: 10.1097/QAI.0000000000001584. [Epub ahead of print]
14. Young LE, Schumm P, Alon L, Bouris A, Ferreira M, Hill B, **Khanna AS**, Valente TW, Schneider JA. PrEP Chicago: A randomized controlled peer change agent intervention to promote the adoption of pre-exposure prophylaxis for HIV prevention among young Black men who have sex with men. *Clinical Trials*. 2017 Sep 1. doi: 10.1177/1740774517730012.

15. Young LE, Michaels S, Jonas A, **Khanna AS**, Skaathun B, Morgan E, Schneider J. The organizing potential of sex behaviors: Sex behaviors as social cues that motivate where young men who have sex with men go to meet and socialize. *AIDS and Behavior*. 2017 Jan 17. doi: 10.1007/s10461-017-1679-8.
16. Schneider JA, Cornwell B, Jonas A, Behler R, Lancki N, Skaathun B, Michaels S, **Khanna AS**, Young LE, Morgan E, Duvoisin R, Friedman S, Schumm P, Laumann EO. Network dynamics and HIV risk and prevention in a population-based cohort of Young Black Men Who have Sex with Men. *Network Science*. 2017 February. pp. 1-29.
17. **Khanna AS**, Schumm P, Schneider JA. Facebook network structure and awareness of preexposure prophylaxis among young men who have sex with men. *Ann Epidemiol*. 2016 Nov 29. pii: S1047-2797(16)30499-9. doi: 10.1016/j.annepidem.2016.11.006.
18. Schneider JA, Kozloski M, Michaels S, Skaathun B, Voisin D, Lancki N, Morgan E, **Khanna A**, Green K, Coombs RW, Friedman SR, Laumann E, Schumm P; uConnectand BARS study teams. Criminal justice involvement history is associated with better HIV care continuum metrics among a population-based sample of young black men who have sex with men. *AIDS*. 2016. September 20. Epub ahead of print.
19. Morgan E, **Khanna AS**, Skaathun B, Michaels S, Young L, et al. Marijuana use among young black men who have sex with men and the HIV Care Continuum: Findings from the uConnect cohort. *Subst Use Misuse*. 2016 Nov 9;51(13):1751-9. doi: 10.1080/10826084.2016.1197265.
20. Roberts ST\*, **Khanna AS\***, Barnabas RV, John-Stewart G, Goodreau SM, Baeten JM, Celum C, Cassels S. Estimating the impact of universal antiretroviral therapy (ART) for HIV serodiscordant couples through home HIV testing: Insights from mathematical models. *J Int AIDS Soc*. 2016 May 11;19(1):20864. doi: 10.7448/IAS.19.1.20864. eCollection 2016. (\*equally contributing authors)
21. **Khanna AS**, Michaels S, Skaathun B, Morgan E, Green K, Young L, Schneider JA; uConnect Study Team. Preexposure Prophylaxis Awareness and Use in a Population-Based Sample of Young Black Men Who Have Sex With Men. *JAMA Intern Med*. 2016 Jan 1;176(1):136-8. doi: 10.1001/jamainternmed.2015.6536.
22. Morgan E, Skaathun B, Michaels S, Young L, **Khanna A**, Friedman SR, Davis B, Pitrak D, Schneider J; UConnect Study Team. Marijuana Use as a Sex-Drug is Associated with HIV

Risk Among Black MSM and Their Network. *AIDS Behav.* 2016 Mar;20(3):600-7. doi: 10.1007/s10461-015-1195-7.

23. **Khanna AS**, Roberts ST, Cassels S, Ying R, John-Stewart G, Goodreau SM, Baeten JM, Murnane PM, Celum C, Barnabas RV. Estimating PMTCT's Impact on Heterosexual HIV Transmission: A Mathematical Modeling Analysis. *PLoS One.* 2015 Aug 11;10(8):e0134271. doi: 10.1371/journal.pone.0134271.
24. **Khanna A**, Goodreau SM, Wohlfeiler D, Daar E, Little S, Gorbach PM. Individualized diagnosis interventions can add significant effectiveness in reducing human immunodeficiency virus incidence among men who have sex with men: insights from Southern California. *Ann Epidemiol.* 2015 Jan;25(1):1-6. doi: 10.1016/j.annepidem.2014.09.012.
25. **Khanna AS**, Dimitrov DT, Goodreau SM. What can mathematical models tell us about the relationship between circular migrations and HIV transmission dynamics? *Math Biosci Eng.* 2014 Oct;11(5):1065-90. doi: 10.3934/mbe.2014.11.1065.
26. Cassels S, Jenness SM, **Khanna AS**. Conceptual framework and research methods for migration and HIV transmission dynamics. *AIDS Behav.* 2014 Dec;18(12):2302-13.
27. **Khanna AS**, Goodreau SM, Gorbach PM, Daar E, Little SJ. Modeling the impact of post-diagnosis behavior change on HIV prevalence in Southern California men who have sex with men (MSM). *AIDS Behav.* 2014 Aug;18(8):1523-31. doi: 10.1007/s10461-013-0646-2.

## Software

- Jacobs Simon, **Khanna Aditya**, Madduri Kamesh, Bader David. *influenceR: Software Tools to Quantify Structural Importance of Nodes in a Network*. Version: 0.1.0. CRAN R package (2015): <https://cran.r-project.org/web/packages/influenceR/index.html>

## Honors and Awards

- |      |   |
|------|---|
| 2017 | UChicago Research Fellows: Awarded to mentor undergraduate student.   |
| 2016 | <b>Best Paper Prize, American College of Epidemiology.</b>  |
| 2016 | Paper featured on the UNAIDS <i>HIV This Month</i> :<br><a href="https://sciencenow.unaids.org/post/hiv-testing-and-treatment-21">https://sciencenow.unaids.org/post/hiv-testing-and-treatment-21</a> . |
| 2014 | Best Poster for Development and Discovery, University of Washington (UW), Department of Global Health Symposium.  |

- 2013 Best Student Paper (Honorable Mention), Sunbelt: International Network for Social Network Analysis.
- 2013 Appointed as a gonfalonier at UW Commencement 2013, as one of two graduating doctoral students who exemplify “the ideals of graduate education at UW: excellence in learning, teaching, mentoring and/or research”.**
- 2013 University of Washington Travel Award.
- 2012 Best Presentation (Co-Winner), Quantitative Ecology and Resource Management Seminar.
- 2011 University of Washington Travel Award.
- 2009 Best Poster Prize (Co-winner), UW Center for Statistics and Social Sciences, 10<sup>th</sup> Anniversary Conference.
- 2006-2007 University of Washington First Year Fellowship, QERM program.
- 2004 Moravian College, Student Opportunities for Academic Research Award (SOAR), Mathematics.
- 2002 Moravian College, Student Opportunities for Academic Research Award (SOAR), Physics.
- 2001-2005 Moravian College International Student Grant, Covering Full Tuition Expenses.
- 1998-2000 Scholarship to attend the Mahindra United World College of India.

## Research Grants

### *Active*

- 2018-2023 **NIH R01 AI136056 (PI Benbow, D’Aquila, Schneider)**  
 “Next-generation phylodynamics-targeted partner service models for combined HIV prevention”  
My role: Co-Investigator. Effort: 35%.
- 2019-2021 **NIH R03 DA049662**  
 “Modeling combination biomedical substance use interventions to inform a getting to zero implementation for black men who have sex with men”  
My role: Principal Investigator. Effort: 15%.
- 2018-2020 **NIH R21 CA215252**  
 “Assessing and modeling network-level consequences of patient navigation.”  
My role: Multiple Principal Investigator. Effort: 15%.
- 2015-2020 **NIH R01 DA 039934 (PI Schneider, Fujimoto, Harawa)**  
 “HIV intervention models for criminal justice involved substance using Black MSM.”  
My role: Co-Investigator. Effort: 25%.
- 2017-2020 **NIH U01 PS005172 (PI Novak).**  
 “Syphilis in Chicago: Epidemiology, Sexual Networking and Modeling for

Prevention.”

My role: Site-Principal Investigator. Effort: 5%.

2017-2020 **NIH R01GM121600 (PI Boodram, Dahari, Ozik).**  
“Computational discovery of effective hepatitis C intervention strategies.”  
My role: Co-Investigator. Effort: 5%.

### *Past*

2018-2019 **Third Coast CFAR Pilot Award P30 AI117943 (PI D’Aquila)**  
“Towards an Effective PrEP Diffusion Model: Identifying Criteria for Peer Change Agent Selection.”  
My role: Project Principal Investigator

2015-2018 **NIH R21 AI 118998 (PI Schneider)**  
“Public health targeting of PrEP at HIV positives’ bridging networks.”  
My role: Co-investigator

2013-2017 **NIH R01 DA 033875 (PI Schneider)**  
“Social network dynamics, HIV, and risk reduction among younger Black MSM.”  
My role: Postdoctoral Research Associate

2013-2014 **HIV Modeling Consortium RFA 3.2 (PI Barnabas, Cassels)**  
“Using network models to optimize the impact of treatment programs for HIV prevention among serodiscordant couples and pregnant women in South Africa and Uganda.”  
My role: Postdoctoral Research Associate

2007-2012 **NIH R01 DA 022116 (PI Gorbach)**  
“Transmission behavior in partnerships of newly HIV-infected Southern Californians”  
My role: Graduate Research Assistant

### **Teaching**

#### *Classroom Instruction (Full Courses)*

2007-2012 **Teaching Assistant**  
Center for Quantitative Science, University of Washington  
Courses titled “Analysis for Biologists” and “Statistical Inference in Applied Research”

2007-2008 **Instructor**

Center for Quantitative Science, University of Washington  
Course titled "Analysis for Biologists"

2005-2006      **Full-time Teacher**  
Trinity Collegiate High School  
Advanced Placement Statistics; Honors Physics, Geometry, and Algebra.

*Classroom Instruction (Guest Lectures)*

2019            Quantitative Methods Fellowship (UChicago)  
2016            Critical Readings in Epidemiology (UChicago)  
2015-2016      Math Research Experiences for Undergraduates (UChicago)  
2015-2016      Youth Health Leadership Core: Epidemiology Research (UChicago)  
2013            Social Networks and Health (U Washington)  
2012            Seminar in Quantitative Ecology (U Washington)  
2010            Statistical Software and Applications (U Washington)

**Mentoring and Research Supervision**

05/2020-present    **Bryan Brickman, B.A.**  
Projects: 1) Network modeling breast cancer navigation, 2) Agent-based modeling of HIV transmission, 3) Statistical and computational modeling for projecting HIV incidence in Chicago.

05/2020-present    **Daniel Sheeler, M.S.**  
Position: Software developer  
Projects: Multiple projects that require backend C++ development.

05/2020-present    **Francis Lee, Ph.D.**  
Position: Postdoctoral Scholar  
Projects: NIDA T-32 award on modeling networks of substance users.

03/2020-present    **Mert Edali, Ph.D.**  
Position: Postdoctoral Scholar  
Projects: Multiple projects on agent-based modeling of transmission of HIV and COVID.

06/2019-06/2020    **Michael Cronin**  
Position: Research Data Analyst  
Projects: 1) Network modeling breast cancer navigation, 2) Agent-based modeling of HIV transmission, 3) Statistical and computational modeling for projecting HIV incidence in Chicago.

10/2018-present    **Babak Mahdavi Ardestani, Ph.D.**  
Position: Postdoctoral Scholar, The University of Chicago Medicine  
Projects: Multiple projects on agent-based modeling of transmission of HIV and other sexually transmitted infections.



- 08/2017-  
06/2019      **Arthi Ramachandran, Ph.D.**  
Position: Postdoctoral Scholar, The University of Chicago Medicine  
Projects: Multiple projects on agent-based modeling of transmission of HIV and other sexually transmitted infections.
- 02/2017-  
05/2019      **Abigail Skwara, B.A.**  
Position: Research Data Analyst, Chicago Center for HIV Elimination  
Projects: 1) Network modeling breast cancer navigation, 2) Agent-based modeling of HIV transmission, 3) Statistical and computational modeling for projecting HIV incidence in Chicago.
- 06/2017-  
01/2018      Position: Undergraduate student (Mathematics), University of Chicago  
Project: Predicting new HIV cases in Chicago
- 06/2017-  
12/2017      **Daniel Gore, B.A.**  
Position: M.D. Student, Rush University  
Project: Assessing individual and network covariates of HIV partner notification services.
- 06/2016-  
12/2016      **Alex Cordover**  
Position: Undergraduate student (Statistics), The University of Chicago  
Project: Bayesian modeling of Ebola transmission
- 06/2015-  
10/2015      **Nathan Gill**  
Position: Undergraduate student (Mathematics), The University of Chicago  
Project: Stochastic network modeling of HIV transmission

### **Invited Talks**

“Biosocial network modeling to inform initiatives to achieve health equity.” School of Public Health, Indiana University, Bloomington, January 2020.

“Biosocial network modeling for HIV Elimination”, Department of Biostatistics, Schools of Public Health and Medicine, Indiana University, Indianapolis, January 2020.

“Network modeling in HIV/STI research.” Modeling workshop attended by P2M project investigators at the University of Chicago, University of Texas Health Sciences Center at Houston, Northwestern University and representatives of the Chicago and Houston Departments of Public Health, September 2018.

“The Illinois “Getting To Zero” campaign: Formulating a model-based strategy for eliminating HIV Infections by 2030.” Getting to Zero Kick Off event, convened by the AIDS Foundation of Chicago and the the Public Health Departments of Chicago and Illinois, Chicago, June 2018.

“Biosocial network models for HIV elimination.” School of Human Evolution and Social Change, Arizona State University, Tempe, AZ, January 2017.

“Biosocial network models for HIV elimination.” Department of Public Health Sciences, University of Chicago, Chicago, IL, January 2017.

“Network analysis to reduce new HIV infections among young Black men who have sex with men (BMSM) in Chicago.” Third Coast Center for AIDS Research, Feinberg School of Medicine, Northwestern University, Chicago, IL, November 2016.

Invited panelist in a satellite session titled “Addressing the leading edge of the HIV Epidemic in the U.S.: Advancing prevention programs for urban YMSM” at the HIV Research for Prevention (HIVR4P) Conference, Chicago, IL, October 2016.

“Epidemiology of HIV prevention: Networks, models and data.” Homer Stryker School of Medicine, Western Michigan University, Kalamazoo, MI. June 2016.

“The BARS modeling plan: Agent-based modeling using a combination of the Repast HPC and Statnet suites.” BARS Investigator Retreat at UCLA, January 2016.

“The use of mathematical modeling in public health decision making.” University of Chicago India Center, New Delhi, India, December 2015.

“Stochastic agent-based network modeling of HIV transmission.” BARS Study Retreat, Argonne National Laboratory, Lemont, IL, May 2015.

“Treatment as prevention for serodiscordant couples and pregnant women.” HIV Modeling Consortium Symposium, Kuala Lumpur, Malaysia, June 2013.

“An examination of diagnosis strategies to maximize the preventive potential of post-diagnosis behavior change: insights from Southern California.” March 2013. Public Health Seattle and King County (PHSKC) brown bag series, Seattle, WA, March 2013.

“Bio-behavioral models for HIV prevention.” Professor Pejman Rohani’s laboratory at the Center for Complex Systems, University of Michigan, Ann Arbor, MI, May 2012.

## **Conference Activity**

### *Contributed Talks (first/presenting author only)*

“An Agent-Based Network Model to Assess the Impact of Navigated Care on Stage of Breast Cancer Diagnosis.” *Sunbelt 2019*, organized by International Network for Social Network Analysis (INSNA), Montreal, Quebec, 2019.

“Incorporating Temporal Network data to Identify Peer Change Agents (PCAs) to Disseminate Information for an HIV prevention intervention.” *Sunbelt 2019*, organized by International Network for Social Network Analysis (INSNA), Montreal, Quebec, 2019

“Using Partially Observed Facebook Networks to Develop Peer-Based HIV Prevention Interventions: A Chicago case study.” *Sunbelt 2018*, organized by International Network for Social Network Analysis (INSNA), Utrecht, Netherlands, 2018.

“Where should we Focus? PrEP Retention versus PrEP Uptake: Results from the BARS Agent-Based Model of HIV Transmission among Young Black MSM.” *Adherence 2018*, co-organized by the International Association of Providers and AIDS Care and Columbia University College of Physicians and Surgeons, Miami, FL, June, 2018.

“Getting to Zero: Triangulating HIV Incidence Predictions from Micro-Level Network Modeling and Macro-Level Incidence Projections.” *Society for Prevention Research Annual Meeting*, Washington, D.C., June, 2018.

“Towards an Effective PrEP Diffusion Model: Identifying Criteria for Peer Change Agent Selection.” Mentoring Day at *CFAR Social and Behavioral Sciences Research Meeting*, San Francisco, CA, October 2017.

“The impact of missing data imputation on the selection of peer change agents in a Facebook network of young men who have sex with men.” *Population Association of America*, Chicago, IL, April 2017.

“The BARS study: Building agent-based models of racialized justice systems (BARS) study in Black MSM. Joint with Kayo Fujimoto, Nina Harawa, John Schneider. *NAESM*, Los Angeles, CA, January 2016.

“Lifelong ART for pregnant women has the potential to reduce heterosexual HIV transmission.” *Treatment as Prevention Workshop*, Vancouver, BC, April 2014. (Presented by PI, Dr. Ruanne Barnabas).

“Modeling the impact of post-diagnosis behavior change on HIV prevalence in southern California men who have sex with men (MSM).” *Population Association of America*, New Orleans, LA, April 2013.

“Circular migrations and HIV transmission dynamics: A comparison of compartmental and network-based modeling.” *Population Association of America*, San Francisco, CA, May 2012.

“The impact of acute infection, testing, and post-diagnosis behavior change on HIV transmission among men who have sex with men (MSM) in Southern California.” *Sunbelt: International Network for Social Network Analysis*, Redondo Beach, CA, March 2012.

“Circular migrations and HIV transmission dynamics.” *International Symposium on Biomathematics and Ecology: Education and Research*, Portland, OR, December 2011.

“Circular migrations and HIV transmission dynamics.” *Mathematical Association of America, Annual Meeting, Northwest Section*, Seattle, WA, April 2010.

“Daisyworld.” *American Association of Physics Teachers Meeting*, York, PA, March 2005.

“Environmental feedback in Daisyworld.” *Moravian College Mathematics Conference*, Bethlehem, PA, February 2005.

Posters (first author only)

“Towards an Effective PrEP Diffusion Model: Identifying Criteria for Peer Change Agent Selection.” *Third Coast CFAR Research Symposium*, Chicago, IL, October 2017.

“Introducing BARS: Building Agent-based models for racialized justice systems.” *Research Day*, University of Chicago Medicine, Chicago, IL, March 2017.

“Pre-Exposure Prophylaxis (PrEP) knowledge and use in a population-based sample of younger Black Men who have sex with men (YBMSM) in Chicago.” *8<sup>th</sup> IAS Conference on HIV Pathogenesis, Treatment and Prevention*, Vancouver, BC, July 2015. (Presented by PI Dr. John Schneider.)

“Combination ART for prevention of mother-to-child HIV transmission can decrease adult HIV incidence in Uganda and South Africa.” *Gates Grand Challenges*, Seattle, WA, Fall 2014. (Presented by coauthor Sarah T. Roberts).

“Individualized diagnosis strategies have potential to substantially reduce HIV incidence among men who have sex with men (MSM).” *Population Association of America*, Boston, MA, May 2014.

“Lifelong ART for pregnant women has the potential to reduce heterosexual transmission of HIV.” *University of Washington Global Health Research Symposium*, Seattle, WA, March 2014. (Won Best Poster Prize for Development and Discovery).

“Circular migrations and HIV transmission dynamics: A comparison of compartmental and network modeling.” *IAS 2013. 7<sup>th</sup> IAS Conference on HIV Pathogenesis, Treatment and Prevention*; Kuala Lumpur, Malaysia, July 2013.

"The impact of acute infection, testing, and post-diagnosis behavior change on HIV transmission among men who have sex with men (MSM) in Southern California." *Population Association of America*, San Francisco, CA, May 2012.

"The impact of acute infection, testing, and post-diagnosis behavior change on HIV transmission among men who have sex with men (MSM) in Southern California." *Epidemics 3*, Boston, MA, December 2011.

"Circular migrations and HIV transmission dynamics." *Epidemics 3*, Boston, MA, December 2011.

"Circular migrations and HIV transmission dynamics." *Center for Statistics and Social Sciences, University of Washington, 10th Anniversary Conference*; Seattle, WA, May 2009. (Co-Winner, Best Poster Prize.)

"Dynamics of under-powered lasers." *National Council of Undergraduate Research*, Salt Lake City, UT, March 2003.

## **Service to Department**

### *University of Chicago*

- Chaired committee to hire a Postdoctoral Scholars (2016-2019), Research Data Analysts (2016-2018) and Software Developer (2019) at the Chicago Center for HIV Elimination (CCHE).
- Served on search committee to hire Research Assistant Professors (2018) and Staff Scientists at CCHE (2017-2018).
- Chair of the Grants and Collaboration Committee at the Chicago Center for HIV Elimination (CCHE), Department of Medicine (2017-2018).
- Organized CFAR Seminar at the University of Chicago (2016).

### *University of Washington*

- Developed and co-presented a workshop titled "Being an RA in Math, Science and Engineering" to about 30 incoming graduate students during the TA/RA conference organized by the Center for Teaching and Learning (2011).
- Served as Student Representative on Quantitative Ecology and Resource Management's Curriculum Revision Committee, (2009-2010).
- Served on a panel organized by the Center for Instructional Development and Research, to discuss my experiences as an international TA (2009).

## **Service to Profession**

Reviewer for *Acta Biotheoretica*, *AIDS and Behavior*, *Archives of Sexual Behavior*, *BMC Infectious Diseases*, *Bulletin of Mathematical Biology*, *Clinical Infectious Diseases*, *Harm Reduction Journal*, *Journal of the Acquired Immune Deficiency Syndromes (JAIDS)*, *Journal of the International AIDS Society (JIAS)*, *Mathematical Biosciences*, *PLoS One*, *Proceedings of the National Academy of Sciences* (declined), *Public Health Reports*, *Journal of the Royal Society Interface*, *Scientific Reports*, *Theoretical Population Biology*.

### Professional Societies

Association for Computing Machinery (ACM)

International Network for Social Network Analysis (INSNA)

Population Association of America (PAA)

### Computing Skills

- Modeling expertise: Agent-based network modeling; statistical computing; network and spatial data analysis; predictive analytics.
- Computing Environments: Unix/Linux environments; High performance cluster computing.
- Experienced in open source software development and maintenance (<https://cran.r-project.org/web/packages/influenceR/index.html>) and version control (Git).
- Languages: R (expert), Mathematica (familiar), C (familiar).

### Media and Public Dissemination

- Wrote an invited piece for Boston University *Public Health Post*: <https://www.publichealthpost.org/research/using-social-networks-to-eliminate-new-hiv-infections-in-chicago/>, “Sex and the City’s Network”, May 2018
- Provided expert scientific input to reporters at
  - *ABC News* (July 2020): <https://abcnews.go.com/Politics/transparency-questions-hospitals-directed-report-covid-data-hhs/story?id=71803141>
  - *The New York Times* (June 2020): <https://www.nytimes.com/2020/06/15/health/coronavirus-underlying-conditions.html>
  - *WJCT Public Radio*, Jacksonville, FL (June 2020): <https://www.knoxnews.com/story/news/2020/04/16/guide-making-sense-covid-19-models-coronavirus-forecast/5131056002/>
  - *Chicago Sun-Times* (May 2020)
  - *Knoxville News Sentinel*, Knoxville, TN (April 2020): <https://www.knoxnews.com/story/news/2020/04/16/guide-making-sense-covid-19-models-coronavirus-forecast/5131056002/>),
  - *Chicago Tribune* (March 2020)
- Featured story on the UChicago Research Computing Website, “The HIV Epidemic vs the Social Network”, April 2015, <https://rcc.uchicago.edu/hiv-epidemic-versus-social-network>

**Natural Languages**

Native: Hindi, English

Fluent: Marathi

Beginner: Portuguese

**Citizenship**

United States