

BIOGRAPHICAL SKETCH

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NAME: Rose, Johnie II

eRA COMMONS USER NAME (credential, e.g., agency login): JOHNIEROSE

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

| INSTITUTION AND LOCATION | DEGREE (if applicable) | Completion Date MM/YYYY | FIELD OF STUDY |
|--|---------------------------|----------------------------|--|
| Vanderbilt University, Nashville, TN | BS | 05/1997 | Economics |
| University of Tennessee College of Medicine, Memphis, TN | MD | 05/2003 | Medicine |
| University Hospitals Case Medical Center, Cleveland, OH | | 06/2004 | Medicine Internship |
| Case Western Reserve University | PhD | 12/2009 | Epidemiology & Biostatistics/specializing in Health Services Research & Policy |
| University Hospitals Case Medical Center, Cleveland, OH | | 06/2011 | Residency in Preventive Medicine & Public Health |

A. Personal Statement

I am a Preventive Medicine and Public Health physician and health services researcher specializing in the Study of population health determinants and outcomes. My research and methodological work have focused on cancer control and prevention, examining cancer disparities using secondary data, modeling the population impact of preventive interventions, developing methods for stakeholder participation in the creation of simulation models, and conducting health economic analyses. In addition to my research, I frequently speak around the university and the community on the topic of the U.S. health system, health policy, and health care reform. In July 2019, I returned to full-time status at Case Western Reserve University (CWRU) after nearly two years as part-time faculty during which I served as Chief Medical Officer of a growing health technology company which uses data science and contactless sensor technology to passively monitor patients in their homes.

As CWRU Site PI in the proposed study, I will oversee all aspects of the Aim 3 modeling work by the CWRU team, including CWRU Co-Investigator Dr. Peter Hovmand. Given my experience in simulation modeling and modeling focused on colorectal cancer in particular, I am well-qualified to perform the proposed work and have the necessary institutional resources to do so.

Selected peer-reviewed publications involving cancer control and/or modeling include:

- a. Koroukian SM, Bakaki PM, Htoo RT, Han X, Schluchter M, Owusu C, Cooper GD, **Rose, J**, Flocke SA. The Breast and Cervical Cancer Early Detection Program, Medicaid, and breast cancer outcomes in Ohio's underserved women. *Cancer*. 2017;123(16):3097-3106.
- b. Augestad KM, Keller DS, Bakaki PM, **Rose J**, Koroukian SM, Øresland T, Delaney CP. The Impact of Rectal Cancer Tumor Height on Recurrence Rates and Metastatic Location. A Competing Risk Analysis of a National Database. *Cancer Epidemiology*. 2018;53:56-64.

- c. **Rose J**, Homa L, Kong CY, Cooper GS, Kattan MW, Ermlich B, Meyers JP, Primrose JN, Pugh SA, Shinkins B, Kim, U, Meropol NJ. Development and Validation of a Model to Predict Outcomes of Colon Cancer Surveillance. *Cancer Causes and Control*. 2019. 30(7):767-78.
- d. Kim U, Koroukian S, Statler S, **Rose J**. The Effect of Medicaid Expansion Among Adults from Low-Income Communities on Stage at Diagnosis in Screening-Amenable Cancers. *Cancer*. 2020. *In press*.

B. Positions and Honors

Positions and Employment

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|-----------|--|
| 2004-2005 | Research Assistant, part-time – Department of Epidemiology & Biostatistics (Supervisor: Mendel E. Singer, PhD), Case Western Reserve University, Cleveland, OH |
| Fall 2008 | Teaching Assistant in graduate biostatistics, part-time – Department of Epidemiology & Biostatistics (Course Director: Mendel E. Singer, PhD), Case Western Reserve University, Cleveland, OH |
| 2009-2010 | Researcher, full-time – Department of Surgery (Supervisor: Conor P. Delaney, MD, PhD), University Hospitals Case Medical Center, Cleveland, OH. Working to develop a novel, physician-oriented database application for use in outcomes research and quality improvement |
| 2011-2013 | Senior Instructor, full time – Department of Family Medicine & Community Health (Supervisor: Susan Flocke, PhD), Case Western Reserve University School of Medicine, Cleveland, OH |
| 2011-2014 | Associate Program Director, University Hospitals/Case Western Reserve University Residency in Preventive Medicine & Public Health, Cleveland, OH |
| 2014- | Program Director, University Hospitals/Case Western Reserve University Residency in Preventive Medicine & Public Health, Cleveland, OH |
| 2014- | Assistant Professor – Department of Family Medicine & Community Health (Supervisor: Susan Flocke, PhD), Case Western Reserve University School of Medicine, Cleveland, OH |
| 2019- | Co-Director, Case Comprehensive Cancer Center Population Cancer Analytics Shared Resource |

Other Experience and Professional Memberships

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|-------------|--|
| 2005 - | Member, International Society for Pharmacoeconomics and Outcomes Research |
| 2010 - | Member, American College of Preventive Medicine |
| 2012 – 2015 | CDC-funded Colorectal Clinical Survivorship Care Review Panel – Guideline Reviewer |
| 2015 - | NIDCR Oral Health Disparities Collaborative (OHDC) Cost Studies Working Group |
| 2015 - 2018 | Member, American College of Preventive Medicine Graduate Medical Education Committee |
| 2015 - | Member, Health Improvement Planning Cuyahoga Subcommittee on Linking Health Care and Public Health Systems |
| 2016 - 2018 | Chair, American College of Preventive Medicine Standardized Acceptance Process Task Force |
| 2016 - 2018 | Vice Chair, American College of Preventive Medicine Graduate Medical Education Committee |
| 2019 | <i>Ad hoc</i> Reviewer – American Cancer Society Cancer Control and Prevention: Health Policy and Health Services Research |

Honors

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|------|--|
| 2008 | Health Services Research and Policy Student of the Year, Case Western Reserve University School of Medicine Department of Epidemiology & Biostatistics |
| 2009 | Best Student Research Podium Presentation at the 2009 International Society for Pharmacoeconomics and Outcomes Research International Meeting, Orlando, FL |
| 2010 | Doctoral Excellence Award in Epidemiology and Biostatistics, Case Western Reserve University School of Graduate Studies |
| 2011 | Pediatric Innovation Day Idea Competition Winner for “A self-contained device for subcutaneous hydration in remote settings” |

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| 2011 | Poster Finalist Award, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) European Congress, Madrid, Spain for “A new approach to modeling cancer recurrence and follow-up” |
| 2012 | Competitively selected to attend NIH-funded Institute on Systems Science and Health (ISSH) intensive one-week workshop on complex systems modeling held at Washington University, St. Louis, MO (June 10-15) |
| 2016 | University Hospitals Case Medical Center Faculty Mentor of the Year Award |

C. Contribution to Science

1. *Identifying optimal surveillance strategies for colorectal cancer survivors*

Despite multiple clinical trials over three decades, no clear evidence-based consensus exists regarding how colorectal cancer survivors should be followed after treatment for early detection of cancer recurrence. Funded by an American Cancer Society Mentored Research Scholar Grant, and based on analysis of clinical trial databases, I have developed a unique computer simulation model which allows simulation of hypothetical, user-defined schedules of testing using various clinical testing modalities. The model allows forecasting of relevant clinical outcomes including probability of developing symptoms prior to detection, probability that detected recurrences will be surgically resectable, and survival. A paper describing an initial version of the model was published in 2014, and a more sophisticated version is now functional. Most recently, I published a paper demonstrating the model's projections against findings from the Follow-up After Colorectal Surgery (FACS) trial in the U.K.

- a. **Rose J**, Augestad KM, Cooper GS. Colorectal cancer surveillance: what's new and what's next? *World J Gastroent.* 2014;20(8):1887-1897.
- b. **Rose J**, Augestad KM, Kong CY, Meropol NJ, Kattan MW, Hong Q, An X, Cooper GS. A simulation model of colorectal cancer and recurrence. *BMC Med Informatics and Dec Making.* 2014, 14:29 DOI: 10.1186/1472-6947-14-29.
- c. El-Shami, K., Oeffinger, K. C., Erb, N. L., Willis, A., Bretsch, J. K., Pratt-Chapman, M. L., Cannady, R. S., Wong, S. L., **Rose, J.**, Barbour, A. L., Stein, K. D., Sharpe, K. B., Brooks, D. D. and Cowens-Alvarado, R. L. American Cancer Society Colorectal Cancer Survivorship Care Guidelines. *CA: A Cancer Journal for Clinicians.* 2015; 65(6):427-55.
- d. **Rose J**, Homa L, Kong CY, Cooper GS, Kattan MW, Ermlich B, Meyers JP, Primrose JN, Pugh SA, Shinkins B, Kim, U, Meropol NJ. Development and Validation of a Model to Predict Outcomes of Colon Cancer Surveillance. *Cancer Causes and Control.* 2019. 30(7):767-78.

2. *Methodology for participatory modeling of complex social systems*

Collaborating with colleague Kurt Stange, MD, PhD, I worked to develop methods for incorporating stakeholder input into the development of agent-based models (ABMs). ABMs are often used to simulate complex processes involving heterogeneous, interacting individuals in a responsive environment. ABMs lend themselves particularly well to modeling the outcomes of interactions that involve human behavior. The particular problem we addressed was how to build a better system of health care delivery without dismantling the components of longitudinal primary care that add value beyond treatment of individual conditions. We developed methods to elicit input of stakeholders including clinicians, patients, and family caregivers to inform model development.

- a. Book chapter: **Rose J**, Riolo R, Hovmand P, Cherng S, Ferrer R, Katerndahl D, Jaen CR, Hower T, Ruhe MC, Aungst H, Diez Roux A, Stange KC: “Modeling the Paradox of Primary Care” in Sturmberg JP, Martin C eds., *Handbook on Systems and Complexity in Health.* New York: Springer, 2013.
- b. **Rose J**, Homa L, Hovmand P, Kraus A, Burgess K, Biswas A, Aungst H, Cherng S, Riolo R, Stange KC. Boundary Objects for Participatory Group Model Building of Agent-based Models. *Proceedings of the 48th Annual Hawaii International Conference on System Sciences.* 2015.

- c. Hovmand PS, Osgood N, Kraus A, Kuhlberg J, Hammond R, Hassmiller-Lich K, Biswas A, Stange KC, **Rose J**. Extending Group Model Building to Agent Based Modeling: A Case Study on Understanding the Paradox of Primary Care. *Proceedings of the International System Dynamics Conference*. 2015.
- d. Homa L, **Rose J**, Hovmand PS, Cherng ST, Riolo RL, Kraus A, Biswas A, Burgess K, Aungst H, Stange KC. A Participatory Model of the Paradox of Primary Care. *Annals of Family Medicine*. 2015; 13(5):456-65. PMID: PMC4569454

3. *Developing and comparing strategies to reduce pediatric diarrhea mortality in developing world populations*

While a graduate student, I became interested in the challenges of deploying expensive western vaccines in the poorest parts of the world where they are most direly needed. I developed a computer simulation model to examine the public health impact and economics of mass rotavirus vaccination in India. That study, published in *BMJ*, has led to additional collaboration opportunities. One of these involved helping a Ukrainian team adapt my model to project vaccination outcomes in their country. In addition, this work spawned an idea which has led to two small grants and an awarded U.S. (“Subcutaneous hydration system: method and device”). The device allows non-clinically-trained users to safely and easily administer subcutaneous fluids to dehydrated children and adults when oral intake is not sufficient and other routes of hydration are not feasible.

- a. **Rose J**, Singer ME. Projecting Vaccine Efficacy: Accounting for Geographic Strain Variations. *Pharmacoeconomics*. 2008;26(3):185-189.
- b. **Rose J**, Molnar RL, Watts B, Singer ME. A model-based analysis of the public health impact and cost-effectiveness of mass vaccination using live attenuated human rotavirus vaccine (RIX4414) in India. *British Medical Journal*. 2009 doi:10.1136/bmj.b3653.
- c. **Rose J**, Parashar U. Should India Launch a National Immunisation Programme against **Rose J** Rotavirus? Yes. *British Medical Journal*. 2012;345:e7818. doi: 10.1136/bmj.e7818.
- d. **Rose J**, Homa L, Meropol SB, Debanne SM, Bielefeld R, Hoiyen C, Singer, ME. Health impact and cost-effectiveness of a domestically-produced rotavirus vaccine in India: A model based analysis. *PLoS One*. 2017; 12(11): e0187446. <https://doi.org/10.1371/journal.pone.0187446>

D. Research Support

Ongoing Research Support

Case Center for Reducing Health Disparities (Rose, PI) 4/1/2018 – 3/31/2020
 A place-based, mixed methods approach to targeting breast cancer treatment and survival disparities identifying a set of census tracts in Cuyahoga County, OH with high rates of delayed breast cancer treatment; applying the machine learning technique of unsupervised clustering to identify clusters of census tract (CT) and individual characteristics (sociodemographic “phenotypes”) which, together, constitute high risk markers for delayed treatment; conducting qualitative research in order to identify common barriers to timely and consistent treatment and potential solutions to overcome these barriers.
 Role: PI

1UH2DE025487-01 NIH/NIDCR (Nelson, PI) 9/18/2015-8/31/2020
 Multi-Level Interventions to Reduce Caries Disparities in Primary Care Settings
 Implementing and assessing an intervention at the practice and provider level to increase preventive and restorative dental service utilization for children insured by Ohio Medicaid
 Role: Co-investigator

5P30 CA043703-22 NIH/NCI (Gerson, PI) 09/30/1991-03/31/2023
 Comprehensive Cancer Center Support Grant
 The objectives of the Center are: 1) to improve the prevention, diagnosis, and therapy of cancer through research; 2) to stimulate and support innovative, coordinated, interdisciplinary research on cancer diagnosis,

treatment, and control; 3) to develop clinical applications of research discoveries and to make these applications available as quickly as possible; and 4) to develop cancer prevention and control activities to contribute to the reduction of cancer morbidity and mortality in Northeast Ohio and the surrounding region and nation. Role: Co-Director of Population Cancer Analytics Shared Resource: Member of Cancer Prevention, Control and Population Research Program

Completed Research Support (most recent three years)

124673-MRSG-13-315-01-CPHPS American Cancer Society (Rose, PI) 7/01/2013-9/30/2019

Modeling Colorectal Cancer Recurrence and Surveillance

Developing a computer simulation model which can be used to compare alternative strategies for follow up of colorectal cancer survivors to detect early recurrence

Role: PI

Cleveland Translational Science Collaborative (CTSC; Parent UL1TR000439) 5/1/2018 – 4/30/2019

Building a Data Resource for Understanding the Health of Communities

Developing a multi-level data infrastructure combining geocoded, individual-level cancer incidence and outcomes data with community-level data on healthcare access, socioeconomic indicators, and health behaviors to provide insight into the roots of health disparities in Northeast Ohio

Role: PI

Genomic Health, Inc. (Rose, PI) 4/1/2015-3/31/2018

Using Recurrence Score to Inform Selection of Post-treatment Surveillance Strategies in Colon Cancer Survivors

Assessing the feasibility of using tumor gene expression data to inform post-treatment surveillance planning for individual colon cancer survivors

Role: PI

Supplement to 5P30 CA043703-21 (Koroukian, PI)

1/1/2017-12/31/2017

Evaluating the excess prevalence of non-AIDS defining cancers

Role: Co-investigator