

Noorie Hyun, PhD

CONTACT INFORMATION

Kaiser Permanente Washington Health Research Institute
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CURRENT POSITION

Division of Biostatistics/Kaiser Permanente Washington Health Research Institute
Assistant Investigator (Scientific Investigator I) 2021-present

EDUCATION

University of North Carolina at Chapel Hill, the United States	
Ph.D. in Biostatistics	2014
Catholic University, Seoul, South Korea	
M.S. in Biostatistics	2001
Sogang University, Seoul, South Korea	
M.S. in Mathematics	1999
Hongik University, Seoul, South Korea	
B.S. in Mathematics Education	1996

PROFESSIONAL EXPERIENCE

Division of Biostatistics/Institute for Health and Equity at the Medical College of Wisconsin	
Tenure-track Assistant Professor	2017-2021
Biostatistics and Data Management team, Medical Department, Sanofi-Aventis Korea	
Senior Biostatistician/Manager	2006-2008
Senior Biostatistician	2006
Biostatistician and data manager (formerly Handok-Aventis Korea)	2002-2005

POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS

Division of Cancer Epidemiology and Genetics (DCEG) at the National Cancer Institute (NCI)	
Post-doctoral fellow	2014-2017

RESEARCH EXPERIENCE

Collaborative Studies Coordinating Center, Department of Biostatistics, the University of North Carolina at Chapel Hill	2012-2014
Department of Biostatistics, the University of North Carolina at Chapel Hill	2009-2012

RESEARCH AWARDS/GRANTS

DCEG Informatics Tool Challenge Award	2016
<ul style="list-style-type: none"> Title: A web tool for estimating absolute and relative risk for cohorts assembled from electronic health records within health care systems 	

- Role: Principal Investigator (PI)

American Cancer Society (ACS) Pilot Grant 6/2019-6/2021

- Title: Prediction models for HPV-clearance and progression-to-pre-/cancer of type-specific HPV infections using the EHRs from the KPNC cervical cancer screening cohort
- Role: PI

Advancing Healthier Wisconsin (AHW) 10/2017-9/2021

- Title: community empowerment and lifestyle intervention for ethnic minorities –COME ALIVE MILWAUKEE
- PI: Dr. Egede
- Role: co-investigator (biostatistician)

R21-National Allergy and Infectious Disease Institute 4/2019-3/2021

- Title: Mechanisms of Leptospira interrogans interactions with the vascular endothelium in vivo
- PI: Dr. Coburn
- Role: co-investigator (biostatistician)

R01-National Health, Lung and Blood Institute 7/2019-6/2021

- Title: Small molecule NO precursors as a bioactive source of NO in red light vasodilation
- PI: Dr. Lohr
- Role: co-investigator (biostatistician)

R21-National Health, Allergy and Infectious Disease 7/2020-6/2021

- Title: Mechanisms of Leptospira interrogans interactions with the vascular endothelium in vivo
- PI: Dr. Coburn
- Role: co-investigator (biostatistician)

TEACHING EXPERIENCE

Medical College of Wisconsin Statistical Models and Methods II (PhD course)	spring 2021
NCI/DCEG, Introduction to R-programing (co-instructor)	2015
University of North Carolina, graduate courses Advanced Survey Sampling Methods (teaching assistant)	spring 2013
Principles of Experimental Analysis (teaching assistant)	spring 2012
Advanced Probability Theory (teaching assistant)	fall 2011
Catholic University in Korea, a graduate course Introduction to Statistics with SAS programming (instructor)	2001-2002

Sogang University in Korea, undergraduate courses	
Applied Mathematics (teaching assistant)	spring 1998
Advanced Differential and Integration Calculus (teaching assistant)	fall 1997
Differential and Integration Calculus (teaching assistant)	spring 1997

CO-/MENTORING EXPERIENCE

Maria Demarco, PhD Epidemiology student in Epidemiology and Biostatistics, School of Public Health, University of Maryland – dissertation	2016
Li Cheung, PhD student in Statistics Department, George Washington University Thesis paper: prevalence-incidence model for interval-censored data	2015
Bailey Sarka, Department of Pharmacology and Toxicology/MCW F31-grant proposal “Drug seeking ensembles involved in Oxycodone self-administration within a chronic pain model	2020 – 2021

THESIS COMMITTEE

Larisa A. Broglie, MD (MS/Clinical and Translation Science Institute (CTSI), Medical College of Wisconsin)	2018
Ravi Kishore Narra, MD (MS/CTSI, Medical College of Wisconsin)	2018
Courtney Smith, MS/CTSI, Medical College of Wisconsin	2020-2021
Xiao Li, Biostatistics PhD/IHE/MCW	2020-current

PUBLICATIONS

1. Zhao J, Han X, Nogueira L, **Hyun N**, Jemal A, Yabroff R. Association of State Medicaid Income Eligibility Limits and Long-term Survival after Cancer Diagnosis in the United States. *Journal of Clinical Oncology* 2022; doi: 10.1200/OP.21.00631
2. **Hyun N**, Couper DJ, Zeng D. A semiparametric Gumbel regression model for analyzing longitudinal biomarker with non-normal tails. *Statistics in Medicine* 2021; 1- 15. doi:10.1002/sim.9248
3. Crotty BH, **Hyun N**, Polovneff A, Dong Y, Decker MC, Mortensen N, Holt J, Winn A, Laud P, Somai MM. Analysis of Clinician and Patient Factors and Completion of Telemedicine Appointments Using Video. *JAMA Network Open* 2021;4(11):e2132917. [doi:10.1001/jamanetworkopen.2021.32917](https://doi.org/10.1001/jamanetworkopen.2021.32917)
4. Jackson JL, Balk EM, **Hyun N**, Kuriyama A. Approaches to Assessing and Adjusting for Selective Outcome Reporting in Meta-analysis. *Journal of General Internal Medicine* 2021. <https://doi.org/10.1007/s11606-021-07135-3>

5. Sung H, Freedman RA, Siegel RL, **Hyun N**, DeSantis C, Ruddy KJ, Jemal A. Risks of subsequent primary cancers among breast cancer survivors according to hormone receptor status. *Cancer* 2021; <https://doi.org/10.1002/cncr.33602>
6. Sung H, **Hyun N**, Leach C, Yabroff R, Jemal A. Patterns of the risk for subsequent primary cancer among survivors of adult-onset cancers in the United States. *Journal of the American Medical Association* 2020; 324(24): 2521-35. <https://doi:10.1001/jama.2020.23130>
7. Hahn B, Anderson P, Lu Z, Danner R, Zhou Z, **Hyun N**, Gao L, Lin T, Norris SJ, Coburn J. BBB07 Contributes to, but is not essential for, *Borrelia burgdorferi* infection in mice. *Microbiology Sociology* 2020; 166(10): 988-994.
8. **Hyun N**, Katki HA, Graubard BI. Sample-weighted semiparametric estimates of cause-specific cumulative incidence using left-/interval censored data from electronic health records. *Statistics in Medicine* 2020; 39: 2387– 2402. <https://doi.org/10.1002/sim.8544>
9. Demarco M*, **Hyun N***, Carter-Pokras O, Raine-Bennett TR, Cheung LC, Chen X, Hammer A, Campos NG, Kinney WK, Gage JC, Befano B, Perkins R, He, X, Dallal CM, Chen J, Poitras NE, Mayrand, MH, Coutlee F, Burk RD, Lorey T, Castle PE, Wentzensen N, Schiffman M. A study of type-specific HPV natural history and implications for contemporary cervical cancer screening programs. *EClinicalMedicine* 2020: 22:100293. <https://doi.org/10.1016/j.eclinm.2020.100293>
*: equal contribution (co-first authorship)
10. **Hyun N**, Couper DJ, Zeng D. Gumbel regression models for a monotone increasing continuous biomarker subject to measurement error. *Journal of Statistical Planning and Inference* 2019; 203: 160-168. <https://doi.org/10.1016/j.jspi.2019.03.008>
11. Cheung LC, Pan Q, **Hyun N**, Katki AH. Prioritized concordance index for composite survival outcomes. *Statistics in Medicine* 2019;38(15):2868-2882.
12. Groh EM, **Hyun N**, Check D, Heller T, Ripley RT, Hernandez JM, Graubard BI, Davis JL. Trends in major gastrectomy for cancer: frequency and outcomes. *Journal of Gastrointestinal Surgery* 2019; 23(9):1748-1757. <https://doi.org/10.1007/s11605-018-4061-x>
13. Yu K, **Hyun N**, Fetterman B, Lorey T, Raine-Bennett TR, Zhang H, Stamps RE, Poitras NE, Wheeler W, Befano B, Katki HA, Gage JC, Castle PE, Wentzensen N, Schiffman M. Automated cervical screening and triage, based on HPV partial typing and computer-interpreted cytology. *Journal of the National Cancer Institute* 2018; 110(11):1222-1228. <https://doi.org/10.1093/jnci/djy044> Demarco M, Carter-Pokras O, Hyun N, Castle P, He X, Dallal C, Chen J, Gage J, Befano B, Fetterman B, Lorey T, Poitras N, Raine-Bennett T, Wentzensen N, Schiffman M. Validation of a Human Papillomavirus (HPV) DNA cervical

- screening test that provides expanded HPV typing. *Journal of Clinical Microbiology* 2018; 56(5):e01910-17: <http://doi.org/10.1128/JCM.01910-17>
14. **Hyun N**, Gastwirth JL and Graubard BI. Grouping methods for estimating the prevalences of rare traits from complex survey data that preserve confidentiality of respondents. *Statistics in Medicine* 2018; 37(13):2174-2186: <http://doi.org/10.1002/sim.7648>
 15. Zeng D, **Hyun N**, Cai J. Semiparametric additive model for estimating risk difference in multicenter studies. *Biostatistics and Epidemiology* 2018; 2(1):84-98. <https://doi.org/10.1080/24709360.2018.1445430>.
 16. Landy R, Cheung LC, Schiffman M, Gage JC, **Hyun N**, Wentzensen N, Kinney WK, Castle PE, Fetterman B, Poitras NE, Lorey T, Sasieni PD, Katki HA. Challenges in risk estimation using routinely collected clinical data: The example of estimating cervical cancer risks from electronic health-records. *Preventive Medicine* 2018; 111:429-435. <https://doi.org/10.1016/j.ypmed.2017.12.004>
 17. Matsushita K, Kwak L, **Hyun N**, Bessel M, Agarwal SK, et al. Community burden and prognostic impact of reduced kidney function among patients hospitalized with acute decompensated heart failure: The Atherosclerosis Risk in Communities (ARIC) Study Community Surveillance. *Plos One* 2017; 12(8): e0181373.
 18. Cheung LC, Pan Q, **Hyun N**, Schiffman M and Castle PE. Mixture models for left-censored and irregular interval-censored data: Applications to a cancer screening cohort assembled from electronic health records. *Statistics in Medicine* 2017; 36(22):3583-3595.
 19. **Hyun N**, Cheung LC, Pan Q, Schiffman M and Katki HA. Flexible risk prediction models for left or interval-censored data from electronic health records. *Annals of Applied Statistics* 2017; 11(2): 1063-84.
 20. Schiffman M, Yu K, Zuna R, Dunn ST, Zhang H, Walker J, Gold M, **Hyun N**, Rydzak G, Katki HA, Wentzensen NH. Proof-of-principle study of a novel cervical screening and triage strategy: computer-analyzed cytology to decide which HPV-positive women are likely to have \geq CIN2. *International Journal of Cancer* 2017; 140(3): 718-25.
 21. Wilcox AN, Silverman DT, Friesen MC, Locke SJ, Russ DE, **Hyun N**, Colt JS, Figueroa JD, Rothman N, Moore LE, and Koutros S. Smoking status, usual adult occupation, and risk of recurrent urothelial bladder carcinoma: data from The Cancer Genome Atlas (TCGA) Project. *Cancer Causes Controls* 2016; 27(12): 1429-35.
 22. Schiffman M, **Hyun N**, Raine-Bennett TR, Katki HA, Fetterman B, Cage JC, Cheung LC, Befano B, Poitras N, Castle PE, Wentzensen NH. A cohort study of cervical screening using

partial HPV typing and cytology triage. *International Journal of Cancer* 2016; 139(11): 2606-15.

23. Mirabelli MC, Preisser JS, Loehr LR, Agarwal SK, Barr RG, Couper DJ, Hankinson JL, **Hyun N**, Folsom AR, London SJ. Lung function decline over 25 years of follow-up among black and white adults in the ARIC study cohort. *Respir Med* 2016; 113: 57-64.
24. Zhao J, Zhu Y, **Hyun N**, Zeng D, Uppal K, Tran VT, Yu T, Jones D, He J, Lee ET and Howard, BV. Novel metabolic markers for the risk of diabetes development in American Indians. *Diabetes Care* 2015; 38.2:220-227.
25. Tucker AW, Calliste J, Gidcumb EM, Wu J, Kuzmiak CM, **Hyun N**, Zeng D, Lu J, Zhou O, and Lee YZ. Comparison of a stationary digital breast tomosynthesis system to magnified 2D mammography using breast tissue specimens. *Academic Radiology* 2014; 21(12):1547-52.
26. **Hyun, NR** and Song HH. Nonparametric multivariate test for a monotone trend among k samples. *Korean Journal of Applied Statistics* 2009; 22(5):1047-48.
27. Kim YM, **Hyun NR**, Shon HS, Kim HS, Park SY, Park IH, Chung YS, Jung HG, Kim DH, and Lim SK. Assessment of clinical risk factors to validate the probability of osteoporosis and subsequent fractures in Korean women. *Calcif Tissue International* 2008; 83(6):380-87.

NCBI bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/1raJw9PTgdKkQ/bibliography/public/>

SUBMITTED/ IN-PREPARATION PAPERS

Jackson SS, Marks MA, Katki HA, Cook MB, **Hyun N**, Freedman ND, Kahle LL, Castle PE, Graubard BI, Chaturvedi AK. Sex disparities in the incidence of 21 cancer types: quantification of the contribution of risk factors: Cancer: under revision

Sung H, Siegel RL, **Hyun N**, Miller KD, Yabroff RB, Jemal A. Subsequent primary cancer among survivors of adolescents and young-adult cancer in the United States: A population-based study evaluation over 35 years. *Journal of National Cancer Institute*: under revision

Demarco M, **Hyun N**, Chen X, Moscicki AB, Cheung L, Carter-Pokras O, Hammer A, Gage JC, Clarke M, Castle PE, Befano B, Chen J, Dallal C, He X, Desai K, Lorey T, Poitras N, Raine-Bennett TR, Wentzensen N, Schiffman M. A study of factors warranting consideration in the clinical management of women that screen HPV positive: under review

Crotty BH, Wamuo O, **Hyun N**, Holt J, Melek SM. Patient and Provider Factors Associated with Successfully Addressing Medical Needs Using Telehealth: A Cross-Sectional Survey. *Journal of General Internal Medicine*: under review

SOFTWARE/TOOL

PIMixture (Prevalence Incidence Mixture Models) R-package

<https://dceg.cancer.gov/tools/analysis/pimixture>

PIMixture (Prevalence Incidence Mixture Models) Webtool

<https://analysisistools.cancer.gov/pimixture/#home>

PIcompete (Prevalence Incidence mixture models for competing risks) R-package

<https://github.com/xiaoli-mcw/PIcompete>

HONORS & AWARDS

NCI/DCEG Fellows Awards for Research Excellence: “Effective pooling methods for sample weighted data” 2016

NCI/DCEG Fellowship Achievement Award 2016

American Statistical Association (ASA)-Statistics in Epidemiology Section Travel Award: the early version of “Flexible risk prediction models for left or interval-censored data from electronic health records” 2016

ASA-Biometrics Section Travel Award: the previous version of “Gumbel regression models for a monotone increasing continuous biomarker subject to measurement error.” 2013

Mohberg scholarship, Department of Biostatistics, University of North Carolina 2009

Academic Scholarship, Sogang University 1997-1998

Outstanding Student Scholarship, Sogang University 1997

Academic Scholarship, Hongik University 1992-1995

INVITED TALK

“Sample-weighted semiparametric estimates of cause-Specific cumulative incidence using left-/interval-censored data from electronic health records.”

ASA -BI -NESS Statistics Webinar Series 2019

Lifetime Data Science Conference 2019

Easter North American Region (ENAR), virtual 2020

“Grouping methods for estimating the prevalences of rare traits from complex survey data that preserve confidentiality of respondents.”

ENAR, Philadelphia 2019

Department of Statistics, George Washington University 2017

“Risk prediction models for left-/interval-censored data from electronic health records.”

Easter North American Region (ENAR), Philadelphia	2018
Department of Statistics, George Washington University	2017

“Risk prediction models for left-/interval-censored data from electronic health records.”

Department of Mathematics and Statistics, University of Nevada, Reno	2018
The office of Biostatistics Research, Division of Cardiovascular Disease Science, NHLBI/NIH	2017
Division of Biostatistics, Institute of Health and Equity, Medical College of Wisconsin	2017
Department of Biostatistics and Informatics, U of Colorado at Denver	2017
Lifetime Data Analysis (LIDA) Conference, U of Connecticut	2017

“Issues and modeling in survival analysis of epidemiologic cohorts constructed from electronic health records” (team presentation), SLAM working group seminar, Department of Biostatistics, Johns Hopkins University 2015

“Semiparametric extreme-value regression model for analyzing biomarker-defined time-to-event.”

Biostatistics, Division of Cancer Epidemiology and Genetics, National Cancer Institute	2014
Department of Epidemiology, Tulane University	2014
Department of Biostatistics, MD Anderson Cancer Center	2014

CONTRIBUTED TALK

<i>“Gumbel regression models for longitudinal continuous biomarker outcome subject to measurement error,”</i> Joint Statistical Meetings (JSM)	2020
<i>“Sample-weighted semiparametric estimates of cause-specific cumulative incidence using left-/interval censored data from electronic health records,”</i> JSM	2018
<i>“Grouping methods for estimating the prevalences of rare traits from complex survey data that preserve confidentiality of respondents,”</i> JSM	2017
<i>“IPW Prevalence-Incidence mixed model for interval-censored data,”</i> topic-contributed session, JSM	2015
<i>“Semiparametric extreme-value regression model for analyzing biomarker-defined time-to-event,”</i> ENAR	2014
<i>“Threshold-dependent proportional hazards model for current status data with biomarker subject to measurement error,”</i> ENAR and JSM	2013

PROFESSIONAL ACTIVITY

ASA Biometrics Section Byar Award Committee (JSM awards)	2022
Student paper competition review committee for International Chinese Statistical Association (ICSA)	2021

Organizer for a session, “ <i>Survival analysis methods for complex survey data</i> ” at Lifetime Data Science Conference	2019
Poster Judge for the Survey Research and Methods Section at JSM	2015
DCEG/NCI Fellows Symposium Committee	2015

EDITORIAL ACTIVITY

Ad-hoc review for Biometrics, Biostatistics, Statistics in Medicine, Statistics and Public Policy, Communications for Statistical Applications and Methods, Australian & New Zealand Journal of Statistics, PLOS ONE, Lifetime Data Analysis, Journal of Applied Statistics, Journal of Statistical Computation and Simulation, Journal of Statistics in Biopharmaceutical Research

Grant proposal review for Breast Cancer Now	2019
Statistical review board for the Journal of General Internal Medicine	2018-2020
Statistical review board for the Lancet Haematology	2021-present

PROFESSIONAL AFFILIATIONS

American Statistical Association
Eastern North American Region