

BIOGRAPHICAL SKETCH

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NAME: Abdel Magid, Hoda S.

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

POSITION TITLE: Postdoctoral Scholar

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Santa Clara University, Santa Clara, CA	B.S.	06/2012	Biology; Public Health
Johns Hopkins University, Baltimore, MD	M.H.S.	06/2015	Environmental Epidemiology
University of California, Berkeley, Berkeley, CA	Ph.D.	12/2018	Social Epidemiology
Stanford University, Stanford, CA	Postdoc Fellow	08/2022	Spatial Epidemiology

A. Personal Statement

I am a spatial epidemiologist and an incoming tenure-track Assistant Professor in the Department of Population and Public Health Sciences at University of Southern California (USC) Keck School of Medicine starting September 2023. I will join USC's faculty from Stanford University Department of Epidemiology and Population Health, where I am currently an Instructor (mentored position) completing my K99 Year 1. I will be transitioning to my faculty position at the end of my first year of the K99, and thus not taking on the second year of the K99. My work in spatial epidemiology focuses on understanding the mechanisms by which place affects health. My research aims to identify modifiable spatial determinants of health disparities; and my current research focuses on linking spatial data with social determinants of health and chronic disease data to reduce health disparities.

I am well-suited to serve as PI on this R00 award due to my research experience in health disparities and spatial methods, my training in epidemiology, causal inference, and my knowledge of measuring and modeling hypertension disparities. During my K99, I received training in measuring and modeling hypertension-specific spatial social polarization (SSP) indices in diverse populations, understanding advances in claims and electronic health records research, and understanding causal inference methods including the theoretical and practical limitations of interpreting spatial and social variables in causal inference. Building on this K99 work, in my R00, I will combine these skills to develop structural SSP indices, estimate the association between structural SSP and hypertension disparities, and evaluate the causal effect of eliminating socioeconomic and structural SSP on hypertension disparities between Black-White adults using population intervention model,. In addition, I will simultaneously leverage several linked data sources: spatial, cohort, and claims such as unique geographically linked individual-level data with National Establishment Time Series (NETS) data as well as public claims data to examine population-level hypertension disparities.

My substantive and methodological expertise, and my training in spatial and social epidemiology, hypertension, and causal inference methods, will allow me to succeed as the PI for this R00 and to acquire experience in how to use state-of-the-art spatial epidemiology methods to measure social and physical environmental determinants of hypertension disparities in diverse populations. This proposed R00 will provide the preliminary data to support an R01 application focused on how social interventions operate through structural spatial social polarization to produce racial disparities in hypertension.

Selected publications that highlight experience and qualifications for the proposed project:

1. **Abdel Magid HS**, Milliren CE, Rice K, Molanphy N, Ruiz K, Gooding HC, Richmond TK, Odden MC, Nagata JM. Adolescent individual, school, and neighborhood influences on young adult hypertension risk. PLoS One. 2022 Apr 28;17(4):e0266729. doi: 10.1371/journal.pone.0266729. PMID: 35482649; PMCID: PMC9049504.

2. **Abdel Magid HS**, Jin S, Culpepper WJ, Nelson LM, Wallin M. Telemedicine Utilization Among Patients With Multiple Sclerosis in the US Veterans Health Administration, 2010-2020. *Neurol Clin Pract.* 2022 Dec;12(6):e133-e142. doi: 10.1212/CPJ.0000000000200078. PMID: 36540144; PMCID: PMC9757110.
3. **Abdel Magid HS**, Topol B, McGuire V, Hinman JA, Kasarskis EJ, Nelson LM. Cardiovascular Diseases, Medications, and ALS: A Population-Based Case-Control Study. *Neuroepidemiology.* 2022;56(6):423-432. doi: 10.1159/000526982. Epub 2022 Dec 8. PMID: 36481735; PMCID: PMC9986836.
4. Tan AX, Hinman JA, **Abdel Magid HS**, Nelson LM, Odden MC. Association Between Income Inequality and County-Level COVID-19 Cases and Deaths in the US. *JAMA Netw Open.* 2021;4(5):e218799. Published 2021 May 3. doi:10.1001/jamanetworkopen.2021.8799

B. Positions and Honors

Positions and Employment

- 09/2023- Assistant Professor
Department of Population and Public Health Sciences, University of Southern California
- 09/2022- Instructor
08/2023 Department of Epidemiology and Population Health, Stanford University
- 02/2022- Postdoctoral Fellow
08/2022 Department of Epidemiology and Population Health, Stanford University
- 02/2019- Postdoctoral Fellow
02/2022 Department of Epidemiology and Population Health, Stanford University School of Medicine; Big Data-Scientist Training Enhancement Program, Department of Veterans Affairs Health Economics Resource Center and National Cancer Institute
- 2015-2018 Graduate Research Assistant, Stanford University School of Medicine Division of Adolescent Medicine; UCSF Center for Tobacco Control Research and Education (CTRE)
- 2017-2018 R and Stata Instructor, Data Lab (D-Lab), UC Berkeley
- 2017 Data Analyst, Vital Strategies – Resolve to Save Lives
- 2017 PhD Intern, Genentech Inc., Real World Data Science
- 2016 Short Term Consultant, World Bank Group
- 2016 Graduate Student Instructor, Departments of Epidemiology and Biostatistics, UC Berkeley
- 2016 Data Analyst, Center for Environmental Research and Children's Health (CERCH), UC Berkeley
- 2014-2015 Graduate Student Instructor, Departments of Epidemiology & Biostatistics, Johns Hopkins University
- 2014-2015 A-TRAC Fellow, American Heart Association (AHA)
- 2013-2015 Graduate Research Assistant, Department of Environmental Health Sciences and Institute for Global Tobacco Control, Johns Hopkins University
- 2012 Assistant Program Coordinator, Egyptian Ministry of Youth
- 2011-2012 Public Affairs Intern, California Family Health Council

Other Experience and Professional Memberships

- 2014 - Member, International Society for Environmental Epidemiology (ISEE); American Heart Association (AHA); Society of Epidemiologic Research (SER); American Public Health Association (APHA)
- 2019 - Member, Society of Adolescent Health and Medicine (SAHM); Interdisciplinary Association for Population Health Science (IAPHS)
- 2020- Committee Member, National Cancer Institute CSBC/PS-ON/BD-STEP Junior Investigator Meeting Planning Committee, August 27-28, 2020
- 2020- Justice, Equity, Diversity, and Inclusion (JEDI) Committee, Department of Epidemiology and Population Health, Stanford University
- 2020-2021 Member; Diversity, Equity, & Inclusion Committee, Society of Epidemiologic Research (SER)
- 2021-2024 Co-Chair, Diversity, Equity, & Inclusion Committee, Society of Epidemiologic Research (SER)

Honors and Awards

- 2013 Dean's Leadership Grant, Boston University School of Public Health
- 2013 Future Public Health Leaders Fellowship, UCLA Fielding School of Public Health
- 2014 Applied Research Award, Delta Omega Scientific Poster Competition, Johns Hopkins University Bloomberg School of Public Health

- 2014 Scholarship, The Dorothy and Arthur Samet Student Support Fund, Department of Epidemiology, Johns Hopkins University Bloomberg School of Public Health
- 2014-2015 Fellowship, American Heart Association Tobacco Regulation and Addiction Center
- 2015 Full PhD Scholarships:
 - (1) Department of Environmental Health, Harvard University School of Public Health;
 - (2) Department of Epidemiology, Johns Hopkins University School of Public Health;
 - (3) Division of Epidemiology, UC Berkeley School of Public Health
- 2016-2018 Scholarship, UC Berkeley Public Health Alumni Association
- 2019 Charles E. Irwin New Investigator Award, Society of Adolescent Health and Medicine (SAHM)
- 2020 Young Investigator Educational Grant, 2020 Joint ACTRIMS-ECTRIMS Annual Meeting
- 2020 NIH Health Disparities Research Loan Repayment Program (L60) and Renewal, NHLBI
- 2021 Inaugural Postdoc Justice, Equity, Diversity, and Inclusion (JEDI) Champion Award, Stanford University
- 2021 Next Generation Faculty Award, Honorable Mention; UC Berkeley, UCSF, Stanford University
- 2022 Butler-Williams Scholars Program, National Institute on Aging (NIA), National Institutes of Health
- 2022 Health Disparities Research Institute, National Institute on Minority Health and Health Disparities (NIMHD), National Institutes of Health

C. Contributions to Science

1. Secondhand smoke exposure, biomarkers of secondhand smoke exposure, and cardiovascular disease.
 My early career contributions were focused on leveraging environmental epidemiology to improve our understanding of secondhand smoke (SHS) exposure, and I worked on three projects in this area. First, I worked with a team of researchers in the Johns Hopkins Department of Environmental Health Sciences to quantify SHS exposure levels and describe the characteristics of waterpipe tobacco venues across three countries, including Turkey, Russia, and Egypt. These studies showed significantly high concentrations of SHS constituents in waterpipe tobacco venues' indoor air. These SHS constituents are known to cause adverse health effects and may adversely affect the health of employees and customers in these venues. Second, I worked with a team of researchers in the Johns Hopkins Bloomberg School of Public Institute for Global Tobacco Control to evaluate compliance with smoke-free legislation in Turkey and to ascertain the level of protection afforded by this legislation. In this systematic evaluation of the smoke-free legislation across 12 cities in Turkey, we found excellent compliance in non-dining locations in universities, government buildings, and hospitals, with smoking observed in only $\leq 2\%$ of each of those venues. Third, for my Master's thesis, I led a study examining the effects of SHS and smoking intensity on subclinical cardiovascular disease outcomes in The Multiethnic Study of Atherosclerosis (MESA). Few studies have evaluated the association between SHS and subclinical cardiovascular disease among ethnically diverse populations. This study assessed the impact of SHS on inflammation and atherosclerosis (carotid intima-media thickness, coronary artery calcification, and peripheral arterial disease). Findings from this research further elucidate the association of SHS with inflammation and peripheral arterial disease. My work was recognized by the American Heart Association (AHA), which awarded me one of nine national graduate public health fellowships for research examining cardiovascular health disparities.
 - a. Moon KA, Rule AM, **Abdel Magid HS**, Ferguson JM, Susan J, Sun Z, Torrey C, Abubaker S, Levshin V, Çarkoglu A, Radwan GN, El-Rabbat M, Cohen JE, Strickland P, Breyse PN, Navas-Acien A. Biomarkers of Secondhand Smoke Exposure in Waterpipe Tobacco Venue Employees in Istanbul, Moscow, and Cairo. *Nicotine Tob Res.* 2018 Mar 6;20(4):482-491. doi: 10.1093/ntr/ntx125. PubMed PMID: 28582531; PubMed Central PMCID: PMC6350617.
 - b. Reynolds LM, **Abdel Magid HS**, Chi GC, Lohman K, Barr RG, Kaufman JD, Hoeschele I, Blaha MJ, Navas-Acien A, Liu Y. Secondhand Tobacco Smoke Exposure Associations With DNA Methylation of the Aryl Hydrocarbon Receptor Repressor. *Nicotine Tob Res.* 2017 Apr 1;19(4):442-451. doi: 10.1093/ntr/ntw219. PubMed PMID: 27613907; PubMed Central PMCID: PMC6075517.
 - c. Jones MR, **Abdel Magid HS**, Al-Rifai M, McEvoy JW, Kaufman JD, Hinckley Stukovsky KD, Szklo M, Polak J, Burke GL, Post WS, Blaha MJ, Navas-Acien A. Secondhand Smoke Exposure and Subclinical Cardiovascular Disease: The Multi-Ethnic Study of Atherosclerosis. *J Am Heart Assoc.* 2016 Dec 19;5(12). doi: 10.1161/JAHA.115.002965. PubMed PMID: 27993830; PubMed Central PMCID: PMC5210438.
 - d. Moon KA, **Abdel Magid HS**, Torrey C, Rule AM, Ferguson J, Susan J, Sun Z, Abubaker S, Levshin V, Çarkoğlu A, Radwan GN, El-Rabbat M, Cohen J, Strickland P, Navas-Acien A, Breyse PN. Secondhand smoke in waterpipe tobacco venues in Istanbul, Moscow, and Cairo. *Environ*

2. Alternative tobacco product use among adolescents and young adults.

My doctoral research contributions focused on alternative tobacco product (ATP) use among adolescents and young adults. I examined relationships between marketing receptivity, tobacco retail environment, and risk and benefit perceptions with individual ATP use. I conducted the first longitudinal study examining the relationship between ownership of promotional items and subsequent initiation of ATPs, and found that adolescents owning ATP promotional materials were more likely to initiate ATP use one year later. These findings suggest that the current marketing regulations in place for cigarettes, including restrictions of samples, coupons, and other promotional material distributed to adolescents and young adults, should extend to ATPs. I additionally conducted a geospatial analysis of a multilevel, longitudinal dataset linking survey data from 728 adolescents (ages 13-19) nested in 191 neighborhoods nested in 10 California high schools with geospatial data of tobacco retailers from a state licensing list. My findings show that tobacco retailers clustered around students' home neighborhood may be an influence on adolescents' individual ATP use. These findings suggest the importance of regulating the tobacco retail environment to reduce the marketing and accessibility of ATPs, which can thereby reduce the uptake of ATPs among youth. Resulting from this work, I was invited to co-author a SAHM position paper on e-cigarette use among youth, which has been published in *Journal of Adolescent Health*. In recognition of this work, I was awarded the 2019 Charles E. Irwin New Investigator Award from the Society of Adolescent Health and Medicine (SAHM).

- a. **Abdel Magid HS**, Halpern-Felsher B, Ling PM, Bradshaw PT, Mujahid MS, Henriksen L. Tobacco Retail Density and Initiation of Alternative Tobacco Product Use Among Teens. *J Adolesc Health*. 2020 Apr;66(4):423-430. doi: 10.1016/j.jadohealth.2019.09.004. Epub 2019 Nov 26. PubMed PMID: 31784411; PubMed Central PMCID: PMC7089810.
- b. **Abdel Magid HS**, Bradshaw PT, Ling PM, Halpern-Felsher B. Association of Alternative Tobacco Product Initiation With Ownership of Tobacco Promotional Materials Among Adolescents and Young Adults. *JAMA Netw Open*. 2019 May 3;2(5):e194006. doi: 10.1001/jamanetworkopen.2019.4006. PMID: 31099874; PMCID: PMC6537923.
- c. Chadi N, Camenga D, Harris S, Masonbrink A, Gray N, Ammerman S, Meyers M, Bhav S, **Abdel Magid HS**, Klein J. Protecting Youth From the Risks of Electronic Cigarettes. *J Adolesc Health*. 2020 Jan;66(1):127-131. doi: 10.1016/j.jadohealth.2019.10.007. Epub 2019 Nov 25. PMID: 31780385

3. Geographically linking novel data sources to examine socioeconomic disparities in health.

In my postdoctoral training and year 1 of my K99 at Stanford University and the VA, I have used spatial epidemiologic methods to examine health disparities in chronic disease risk. I have first-authored and co-authored 14 publications using spatial methods. These manuscripts include first-author examinations of (1) individual, school, and neighborhood influences on young adult hypertension risk and (2) screen time; (3) the association between cardiovascular diseases and medications with the risk of developing ALS in a population-based nested case-control study of the Medicare population; (4) telemedicine utilization trends and spatial disparities among patients with multiple sclerosis in the VA from 2010-2020; (5) differences in COVID-19 risk by race and county-level social determinants of health among Veterans. Examples of methods I have used include cross-classified multilevel models with Bayesian estimation procedures to parse the individual, school-, and neighborhood-level demographic and socioeconomic factors associated with screen time among adolescents. This first-authored publication led to my work on an editorial in *Obesity* with 2 co-authors calling for professional societies such as the American Academy of Pediatrics to update screen time recommendations to support families during the COVID-19 pandemic, which has been cited over 300+ times. I also published 8 co-authored manuscripts including in *Psychiatric Services* where I served as a senior author mentoring three epidemiology students and in *JAMA Network Open* which received significant media attention in *The Economist*. In addition, as of April 2023, I have four papers submitted and under review two of which directly implement spatial epidemiologic methods.

- a. **Abdel Magid HS**, Jin S, Culpepper WJ, Nelson LM, Wallin M. Telemedicine Utilization Among Patients With Multiple Sclerosis in the US Veterans Health Administration, 2010-2020. *Neurol Clin Pract*. 2022 Dec;12(6):e133-e142. doi: 10.1212/CPJ.0000000000200078. PMID: 36540144; PMCID: PMC9757110.
- b. **Abdel Magid HS**, Milliren CE, Pettee Gabriel K, Nagata JM. Disentangling individual, school, and neighborhood effects on screen time among adolescents and young adults in the United States. *Prev Med*. 2021 Jan;142:106357. doi: 10.1016/j.ypmed.2020.106357. Epub 2020 Dec 7. PMID: 33301823; PMCID: PMC7934642.

- c. **Abdel Magid HS**, Ferguson JM, Van Cleve R, Purnell AL, Osborne TF. Differences in COVID-19 Risk by Race and County-Level Social Determinants of Health among Veterans. *Int J Environ Res Public Health*. 2021 Dec 13;18(24):13140. doi: 10.3390/ijerph182413140. PMID: 34948748; PMCID: PMC8701661.
- d. Tan AX, Hinman JA, **Abdel Magid HS**, Nelson LM, Odden MC. Association Between Income Inequality and County-Level COVID-19 Cases and Deaths in the US. *JAMA Netw Open*. 2021;4(5):e218799. Published 2021 May 3. doi:10.1001/jamanetworkopen.2021.8799

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/hoda.abdel%20magid.1/bibliography/public/>