
BIOGRAPHICAL SKETCH

NAME: Dustin T. Duncan

POSITION TITLE: Associate Dean for Health Equity Research; Professor of Epidemiology (Tenured); Co-Director, Health Equity Core, HIV Center for Clinical and Behavioral Sciences; Co-Director, Social and Spatial Epidemiology Unit; Director, Spatial Epidemiology Lab, Mailman School of Public Health, Columbia University

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Morehouse College, Atlanta, GA	BA	05/2005	Psychology
Harvard Chan School of Public Health, Boston, MA	ScM	06/2007	Community Health
Harvard Chan School of Public Health, Boston, MA	ScD	05/2011	Social Epidemiology
Harvard Chan School of Public Health, Boston, MA	Postdoctoral	08/2013	Social Epidemiology
Kenya Institute of Social Work, Nairobi, Kenya	Certificate	08/2024	Counseling

A. Personal Statement

Impact on Research and Science: I am a fierce advocate for the role of research, science and higher education in addressing complex global challenges, and addressing structural inequity within and outside of the digital academy. I am an internationally renowned *Public Health Researcher, Professor and Social and Spatial Epidemiologist* with over 250 high-impact scientific publications. Through research, teaching, mentoring, and service, I have made transformative contributions to science, policy, and diversification of the workforce that have directly (or indirectly) impacted epidemiology and public health as well as health equity and social justice. These efforts have culminated in over \$38M in funding as PI from the NIH and other agencies. Since 2016, I have been an NIH super principal investigator (PI), defined as a PI with multiple, simultaneous research grants (Nguyen et al., 2023). As an academic researcher, I have published numerous original research articles (n=212; 128 being first or senior-authored), book chapters and encyclopedia entries (n=26), letters to the editor, book reviews and commentaries (n=23) as well as books (n=3)—cited nearly 11,000 times.

Research description: My research program seeks to **advance equity in public health research** through understanding how social contextual factors, especially neighborhood characteristics, influence population health and health equity. The outcomes of my research have predominantly been on HIV prevention and care. I have emerging research on substance use epidemiology and substance use disorders. My work focuses on **Black sexual and gender minority (SGM) people** in the United States (U.S.) and in East Africa, including Black sexual minority men (SMM) and Black transgender women (TW). I focus on heterogeneity within Black SGM people as I acknowledge that Black SGM people experience unacceptably high HIV incidence rates and substance use as well as face unique forms of marginalization and criminalization. This work has appeared in leading public health, epidemiology, medical, geography, demography, criminology, and psychology journals. This approach to scholarly academic research focusing on community engagement, intersectionality and positionality is informed by my recently developed Health Equity Research Production Model, in line with NIH's Equity and Inclusion science approach such as NIDA's Racial Equity Initiative.

My research and that of the field of spatial epidemiology is summarized in my co-edited book *Neighborhoods and Health* (2nd edition) with Ichiro Kawachi (Oxford University Press, 2018). My second co-edited book *The Social Epidemiology of Sleep* with Ichiro Kawachi and Susan Redline focuses on social factors, such as neighborhoods, race/ethnicity, nativity and sexual/gender minority status, as they relate to sleep health (Oxford University Press, 2019). My third book with Oxford University Press on the social dimensions (e.g., race/ethnicity, spirituality, racism and stigma, housing factors and neighborhoods) of COVID-19 health outcomes with Ichiro Kawachi and Stephen Morse with Oxford University Press was published in May 2024. These books have been translated into multiple languages, including Japanese. Moreover, I have been working on my fourth book since July 2020 (my first sole authored book) with Oxford University Press titled *Being Black and Queer: Analysis of Intersectional Trauma for Healing and Empowerment*, which will be complete in September 2026. Moreover, I serve on the Editorial Boards of *Health & Place*, the *Journal of Urban Health*, and *Transgender Health*. Methodologically, my work utilizes an ecologically-intensive and a geospatial lens to apply state-of-the-science approaches. This include the use of advanced geographic information systems (GIS), web-based and real-time geospatial technologies, and geospatial modeling techniques. I have deep expertise in emerging technologies such as wearable Global Positioning System (GPS) devices and smartphones to, in part, examine geographic

mobility and social networks in neighborhoods. I have also led and collaborated on several ecological momentary assessment (EMA) studies as well as digital health-related projects evaluating the impact of health apps in vulnerable populations. My research has been funded by the National Institutes of Health (NIH) (NIMH, NIDA, NIMHD, NIAID, NHLBI), Centers for Disease Control and Prevention (CDC), HIV Prevention Trials Network (HPTN), Robert Wood Johnson Foundation, Tow Foundation, Verizon Foundation, and Aetna Foundation.

I have led and collaborated on numerous federal and foundation grants (including NIH and CDC awards) such as P30 and R01 projects. Most of my collaborations focus on HIV among Black SGM populations. My first R03 was funded at NIDA titled “Activity Space Neighborhoods, Drug Use and HIV Among Black MSM in the Jackson Mississippi MSA.” This innovative pilot research has informed my two R01- and U01-funded prospective cohort studies that use novel geospatial methods: The *N2 (Neighborhoods and Networks) Cohort Study* and the *TURNNT (Trying to Understand Relationships, Networks and Neighborhoods among Transgender women of color) Cohort Study*. These cohorts use GPS methods to understand define GPS-based activity space neighborhoods. The *N2 (Neighborhoods and Networks) Cohort Study* is an ongoing HIV status neutral cohort study including over 600 Black SMM and Black TW in Chicago IL (Award: R01MH11240) that also collected data in the southern U.S. in the original cohort: Jackson MS and New Orleans and Baton Rouge LA (Award: U01PS005122). We recently initiated the *N2 Part 2 (N2P2) Study* to understand how cannabis and sleep may relate to HIV prevention and care among the cohort in Chicago site, using EMA methods (Awards: R01DA054553 and R01HL160325) and supporting mentored research training (e.g., K23MD018337). The *TURNNT (Trying to Understand Relationships, Networks and Neighborhoods among Transgender women of color) Cohort Study* is a HIV status neutral cohort of over 300 Black, Latina and Other transgender women in New York City (Original Awards: R01MD013554, 3R01MD013554-02S1 and 3R01MD013554-04S1). The cohorts have produced scholarly products in journals and conferences including *JAIDS, AIDS and Substance Abuse Treatment, Prevention, and Policy* as well as the 2023 International Sun Belt Social Network Conference.

Also of relevant to the proposed project, I led a national study (funded by the Verizon Foundation) where we characterized the frequency of health application use among a large sample ($n=1,604$) of smartphone users in the U.S. (Krebs and Duncan, *Journal of Medical Internet Research*, 2015), which was cited by 1,349 people including studies focused on SGM people. This seminal digital health study was cited, for example, in a study by Spears et al. titled “Mindfulness-based interventions for addictions among diverse and underserved populations” (*Current Opinion in Psychology* 2019,30:11–16). In other digital health research, we have assessed geosocial-networking applications, such as Grindr and Jack’d, that utilize GPS including among Black SGM people. In one study, we assessed willingness to use smartphone applications (“apps”) for HIV prevention and treatment among a sample of SMM in London who use geosocial-networking apps to meet sexual partners, published in *JMIR Mhealth and Uhealth*. My research collaboration includes colleagues who are academic researchers across Columbia schools/departments and at other domestic and international institutions, including with colleagues at the University of Chicago, Northwestern University, Callen-Lorde Community Health Center, New York University Grossman School of Medicine and INSERM in Paris.

Currently working on: ***Neighborhoods, Networks, Person-Centered Health Interventions, and Policy Partnership Cohort (N2P3)*** of Black SGM people in Atlanta, Chicago and New York City (RFA-DA-25-003) with MPIs Dr. John Schneider (University of Chicago) and Dr. Aaron Siegler (Emory University). I will lead the Neighborhood Health and Health Policy Partnership Teams for the *N2P3* cohort. My work and population of interest focuses on Black SGM people, given the strong scientific premise that we cannot end the HIV epidemic without focusing on inequities for this population, and my own position as a Black and queer epidemiologist. The evidence indicates that we cannot improve population health outcomes and health behaviors without focusing on inequities for Black sexual minority men and Black transgender people specifically. My lived position, therefore, motivates and informs my work. When people see me, though, I understand that the first thing they see is “just another Black man” not recognizing my diverse and intersectional perspectives (as I wrote in my essay in *The Medium* at the peak of the COVID-19 pandemic, after the unjustly police sanctioned murder of George Floyd). Like many other Black people, I am fearful of the police. Scholarly research (including my research) demonstrates that Black men (especially Black queer men) are inequitably harassed, beaten and murdered by the police. My family, my friends and myself have been erroneously stopped by the police on numerous occasions including while driving and walking in our own neighborhoods. As a survivor of cyberbullying within the Black SGM community, my digital health research and advocacy aim to leverage my experience to help others, which I believe is the future of health equity research. My lived experience has highlighted the need for health equity research to be for everyone, using team science approaches. Dr. John Schneider and I have a very strong and longstanding collaboration, including multiple grants (2 MPI R01s; 9 other collaborative NIH

awards) and papers (40+ publications; 32 published and 9 pending), including in *Archives of Sexual Behavior*, *Sexual Health, AIDS & Behavior*, the *Journal of the International Association of Providers of AIDS Care* and *Substance Abuse Treatment, Prevention, and Policy*. We were Multiple Principal Investigators on the original R01 award that funded the N2 Cohort Study in Chicago (R01MH112406) and work collaboratively on the TURNNT Cohort Study in New York City (R01MD013554) among several other projects including recent mentored projects for early-stage investigators and medical residents. I have collaborated with many other members of the N2P3 cohort team including Dr. Asa Radix, Dr. Byoungjun Kim, Dr. Basile Chaix, Mr. Seann Regan, and Dr. Martez Smith. Dr. Aaron Siegler is a national expert on digital health research and has the unique expertise to contribute to an equity-based cyber data collection, storage and security system needed for the project's success and impact.

Ongoing and recently completed project highlights:

1 R01 HL160325-01

Duncan/Schneider (MPI)

9/15/21- 7/31/26

Characterizing Sleep, ART Adherence and Viral Suppression Among Black Sexual Minority Men

We will use a syndemics and multi-level approach to investigate relationships between sleep and HIV treatment outcomes and behaviors (e.g., viral suppression and retention in care) cross-sectionally and longitudinally among Black gay, bisexual and other sexual minority men (SMM) followed over one year to inform interventions.

1R01DA054553-01

Duncan/Knox (MPI)

8/1/21- 5/31/26

Cannabis use, PrEP and HIV transmission risk Among Black MSM in Chicago

The proposed R01 study will assess cross-sectional and longitudinal associations between cannabis use and PrEP outcomes (e.g., use, adherence) and HIV transmission risk (e.g. biological inflammation, sexual risk behavior) using EMA-level and objective biomarker data among HIV-negative Black SMM. To address these specific aims, we will conduct the *Networks and Neighborhoods (N2) Cannabis PrEP Study* in Chicago, IL.

1R01MH112406-01

Duncan/Schneider (MPI)

9/1/16- 5/31/22

PrEP Uptake and Adherence Among Young Black MSM: Neighborhood and Network Determinants

Use real-time geospatial methods to investigate relationships between GPS-defined activity space neighborhoods, social and sexual networks, and HIV pre-exposure prophylaxis (PrEP) use and adherence among young Black MSM in the Chicago IL metropolitan statistical area (n=450).

1U01PS005122-01

Duncan (PI)

5/1/16 – 4/30/21

Impact of Neighborhoods and Networks on HIV Prevention and Care Behaviors Among Black MSM in the Deep South

Use real-time geospatial methods to investigate relationships between GPS-defined activity space neighborhoods, social and sexual networks, and HIV prevention and care behaviors among Black MSM Jackson, Mississippi and New Orleans, Louisiana (n=150).

R01DA044037

Khan (PI), Role: Co-Investigator

7/1/17 – 4/30/23

Stop-and-Frisk, Arrest, and Incarceration and STI/HIV Risk in Minority MSM

This project examines longitudinal associations between stop-and-frisk, arrest, and incarceration and STI/HIV-risk outcomes (e.g., sexual risk behaviors, STI, HIV and viral load) in minority MSM, using the HIV Prevention Trails Network 061 (HPTN 061) cohort of black MSM and the Project 18 (P18) cohorts of minority MSM.

1R01MD013554-01

Duncan (PI)

9/11/18- 4/30/23

Impact of Social Cohesion and Social Capital on PrEP Uptake and Adherence Among Transwomen of Color

This project seeks to use real-time geospatial methods to investigate relationships between social cohesion and social capital within GPS-defined activity space neighborhoods and social networks in relation to HIV pre-exposure prophylaxis (PrEP) use and adherence among transgender women of color in New York City (n=250).

Citations:

- a. **Duncan DT**, Callander D, Bowleg L, Park SH, Brinkley-Rubinstein L, Theall KP, Hickson DA. Intersectional analysis of life stress, incarceration and sexual health risk practices among cisgender Black gay, bisexual and other men who have sex with men in the Deep South of the U.S.: The MARI Study. *Sexual Health*. 2020 Feb;17(1):38-44. PMID: 31972125.
- b. **Duncan DT**, Hatzenbuehler ML, Johnson RM. Neighborhood-level LGBT hate crimes and current illicit drug use among sexual minority youth. *Drug Alcohol Depend*. 2014 Feb 1;135:65-70. PMCID: PMC3919662
- c. **Duncan DT**, Park SH, Goedel WC, Sheehan DM, Regan SD, Chaix B. Acceptability of Smartphone Applications for Global Positioning System (GPS) and Ecological Momentary Assessment (EMA) Research in Sexual Minority Men. *PLoS ONE*. 2019 Jan 28;14(1):e0210240.. PMCID: PMC6349317.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments (Selected)

2024	Chair, NIH Clinical Informatics and Digital Health (CIDH) Review Panel
2023-Pres	Associate Dean for Health Equity Research, Columbia University Mailman School of Public Health
2023-Pres	Co-Director, Health Equity Core, HIV Center for Clinical and Behavioral Sciences, Columbia University
2023	Visiting Professor, Institute of Addiction Science, University of Southern California Keck School of Medicine
2021-Pres	Director, Pilot Projects and Mentoring Core, Center for Drug Use and HIV Research, New York University School of Global Public Health
2021-Pres	Co-Director, Social and Spatial Epidemiology Unit, Department of Epidemiology, Columbia University Mailman School of Public Health
2019-Pres	Director, Columbia Spatial Epidemiology Lab, Department of Epidemiology, Columbia University Mailman School of Public Health
2019-Pres	Associate Professor (Tenure awarded in 2021) to Professor (awarded in 2024), Department of Epidemiology, Columbia University Mailman School of Public Health
2018-2022	Permanent Reviewer, NIH Social Sciences and Population Studies Study Section A
2018	Grant Reviewer, NIH Psychosocial Development, Risk and Prevention Study Section
2017-2022	Invited Member, Adolescent Medicine Trials Network for HIV/AIDS Interventions (ATN) External Scientific Panel (ESP)
2013-2019	Assistant Professor to Associate Professor (Tenure Track), Department of Population Health, New York University Grossman School of Medicine

Honors and Distinctions (Selected)

2024	Public Health Consequences of Changes in the Cannabis Landscape Committee Member, National Academy of Medicine/ National Academies of Sciences, Engineering, and Medicine
2021	HIV and Sexual Health SIG Early Career Award, Society of Behavioral Medicine
2020-2021	Visiting Scholars Program, Center for Drug Use and HIV Research, New York University School of Global Public Health
2020	Mentor of the Year Award, Irving Institute for Clinical and Translational Research, Columbia University Irving Medical Center
2019	Emerging Public Health Professional Award, Harvard T.H. Chan School of Public Health

As Director of the Columbia Spatial Epidemiology Lab and Co-Director of the Social and Spatial Epidemiology Unit at Columbia University Mailman School of Public Health, my substantive research has focused on how the broad **social determinants of health** including race/ethnicity, discrimination and stigma, sexual/gender minority status, religion, housing conditions and neighborhoods **influence HIV and substance use**. I co-edited *The Social Epidemiology of Sleep* with Ichiro Kawachi and Susan Redline (Oxford University Press, 2019) and *The Social Epidemiology of the COVID-19 Pandemic* with Ichiro Kawachi and Stephen Morse (Oxford University Press, 2024), which summarize major social determinants. Although inequities in health have been documented

for well over a half-century, the determinants of this variation remain evasive. My lab has studied a wide range of social determinants; however, we have had a special emphasis on the role of neighborhoods. Using the neighborhood policing model, neighborhood police violence is a neighborhood factor that my research group is increasingly studying in our health equity research among Black SGM people. In one study, we examined the association between neighborhood safety and neighborhood police violence with psychological distress among transgender women of color (TWOC) using baseline self-reported data from the TURNNT (“Trying to Understand Relationships, Networks and Neighborhoods among Transgender Woman of Color”) Cohort Study (analytic n=303). In multivariable analyses, neighborhood safety and neighborhood police violence were associated with psychological distress. For example, individuals who reported medium levels of police harassment had 1.15 [1.03, 1.28] times the odds of experiencing psychological distress compared to those who experienced low levels of police harassment. Exemplar publications:

- a. **Duncan DT**, Park SH, Dharma C, Torrats-Espinosa G, Contreras J, Scheinmann R, Watson K, Herrera C, Schneider JA, Khan M, Lim S, Trihn-Shevrin C, Radix A. Neighborhood Safety and Neighborhood Police Violence Are Associated with Psychological Distress Among English and Spanish-speaking Transgender Women of Color in New York City: Finding from the TURNNT Cohort Study. *Journal of Urban Health*. 2024: In Press. PMID: In Progress.
- b. Remch M, **Duncan DT**, Geller A, Turpin R, Dyer T, Scheidell JD, Cleland CM, Kaufman JS, Brewer R, Hucks-Ortiz C, van der Mei W, Mayer KH, Khan MR. Police harassment and psychosocial vulnerability, distress, and depressive symptoms among black men who have sex with men in the U.S.: Longitudinal analysis of HPTN 061. *SSM Population Health*. 2021 Feb 7;13:100753 PMID: PMC7902537.

Integration of Innovative Geospatial (e.g., GIS, GPS and EMA) Methods in Public Health and Health Equity

Research: I co-edited *Neighborhoods and Health (2nd edition)* with Ichiro Kawachi (Oxford University Press, 2018), which summarizing the field of spatial epidemiology. More recently, in 2024, my colleagues and I published a systematic review and re-direction note for the field of spatial epidemiology (*Epidemiology*; 2024 Mar 22. doi: 10.1097/EDE.0000000000001738). My research, including NIH-funded research, is **contributing to the integration of geographic information systems (GIS), global positioning system (GPS), and ecological momentary assessment (EMA) methods in public health and health equity research**. This early digital health research harnesses smartphones in part to examine social networks in neighborhoods, including the use of geospatial-networking applications. Geosocial-networking applications, such as Grindr and Jack'd, utilize global positioning system (GPS) technologies to allow users to browse user profiles and facilitate connections between users based on physical proximity. My past work has been some of the first of its kind to utilize broadcast advertisements on Grindr to recruit participants and deliver surveys to assess risk behaviors of sexual minority men application users (Goedel and Duncan, *JMIR Public Health Surveill*, 2015). GPS technology can innovatively be used to define more realistic views of neighborhood contexts called “activity space neighborhoods.” My research has addressed limitations in existing spatial epidemiological research, including spatial misclassification (i.e. incorrectly characterizing a neighborhood-level exposure and misestimating spatial mobility) and the “residential trap” (i.e. exclusively focusing on residential neighborhoods). Importantly, this work has empirically demonstrated that, compared to static administrative boundaries such as ZIP codes and census tracts, egocentric and GPS-defined neighborhoods are the best methods in defining neighborhood contexts. I have also conducted EMA studies to combat recall bias in study participants. Innovatively, my lab’s new work is integrating GPS and EMA methods (known as geographically-explicit EMA) because we believe they may be an effective strategy for capturing both health behaviors in real time and in their environmental contexts and they could be integrated into existing apps for wellness and treatment. Exemplar publications:

- a. Khalifa A, Kim B, Regan S, Moline T, Chaix B, Chen Y-T, Schneider J, **Duncan DT**. Examination of multi-dimensional geographic mobility and HIV-related sexual behavior among Black cisgender sexually minoritized men in Chicago. *Geospatial Health*. 2024: In Press. PMID: In progress.
- b. Kim B, Chaix B, Chen Y-T, Callander D, Regan S, **Duncan DT**. Geographic Density and Uptake of Pre-exposure Prophylaxis (PrEP) among Young Gay, Bisexual and other Sexual Minority Men: A Global Positioning System (GPS) Study. *AIDS Behav*. 2021 Nov;25(Suppl 2):155-164. PMID: PMC8541942.

Nearly Complete List of Published Work in MyBibliography (212 original research publications):

<https://www.ncbi.nlm.nih.gov/pubmed/?term=dustin+duncan>