TOMI F. AKINYEMIJU, PhD, MS.

Associate Professor, Department of Population Health Sciences Associate Research Scientist, Duke Global Health Institute Vice-Chair, Diversity, Equity and Inclusion, Department of Population Health Sciences Associate Director, Community Outreach, Engagement and Equity, Duke Cancer Institute Duke University School of Medicine, Durham NC Email: tomi.akinyemiju@duke.edu

ACADEMIC BACKGROUND

| Harvard University Medical School Cancer Biology and Therapeutics Program | 2016-2017 |
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| Columbia University Mailman School of Public Health, New York NY Post-Doctoral Fellowship | 2012-2014 |
| University of Michigan School of Public Health, Ann Arbor MI Epidemiological Science/ Global Health Concentration Doctor of Philosophy (PhD) | May 2012 |
| Michigan State University College of Human Medicine, East Lansing MI Epidemiology/ Specialization in International Development Master of Science (M.S) | May 2006 |
| Michigan State University College of Social Sciences, East Lansing MI Psychology Bachelor of Science (B.S) | August 2004 |
| ACADEMIC APPOINTMENTS | |
| University of Kentucky Department of Epidemiology and Markey Cancer Center Associate Professor | 2017-2019 |
| University of Alabama at Birmingham School of Public Health Department of Epidemiology Assistant Professor | 2014-2017 |
| UAB Comprehensive Cancer Center Cancer Control and Population Sciences Associate Scientist | 2014-2017 |
| UAB Sparkman Center for Global Health Scientist | 2016-2017 |
| UAB Comprehensive Diabetes Center Associate Scientist | 2016-2017 |
| Columbia University Mailman School of Public Health, New York NY Department of Epidemiology Post-Doctoral Research Scientist Tomi F. Akinyemiju CV | 2012-2014 1 |

TEACHING EXPERIENCE

| Columbia University Mailman School of Public Health, New York NY | | |
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| Genetics, Epigenetics and Mendelian Randomization: cutting edge tools for causal inference in epidemiology | | |
| Course co-Instructor (EPIC Summer Institute) | 2018 | |
| | | |
| Power and Sample Size Calculations Using SAS | | |
| Course Instructor (EPIC Summer Institute) | 2014-2020 | |
| | | |
| University of Alabama at Birmingham | | |
| • Epidemiology of Chronic Diseases (EPI 602) | | |
| Course Leader, Cancer Epidemiology | 2015-2017 | |
| | | |
| • Guest Lectures | 2014-2018 | |
| EPI 610- Chronic Disease Epidemiology | | |
| o EPI 710- Case Control Studies | | |
| HB 600- Social and Behavioral Sciences in Public Health | | |
| Community Research Fellows Program | | |
| o EPI 713- Cancer Epidemiology | | |
| Rigor and Transparency in NIH Grant Applications | | |
| Community Research Fellows Training Program | | |
| Master's Directed Research and Capstone Projects | 2015-date | |
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| Doctoral Directed Research and Dissertation Projects | 2015-date | |
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ADMINISTRATIVE APPOINTMENTS AND COMMITTEES

Duke University

- 2021-date • Associate Director, Duke Cancer Institute Community Outreach and Engagement Responsibilities: Serve in a senior leadership position and work with cancer institute director and deputy director to set the strategic mission of the COE program, establish necessary institutional and communitybased infrastructure for stakeholder participation in cancer research, partner with DCI program leaders and engage DCI members to target the cancer burden in catchment area
 - Vice-Chair for Diversity, Equity and Inclusion 2020- date Responsibilities: A key leadership role in the department of population health sciences, will develop long and short-term DEI strategies that align with the department's core missions and work with the department chair and other vice-chairs to implement cross-cutting initiatives. Provide leadership and oversight of DEI committee, and work with departmental leadership to establish, promote and maintain a holistic and integrated vision for a diverse, inclusive and welcoming environment

Director, Diversity, Equity and Inclusion 2019-2020 Responsibilities: To develop a culture of DEI in the Department of Population Health Sciences by creating a DEI committee, conducting a climate survey, developing a strategic plan based on survey results, and implementing specific DEI strategies relating to hiring and retention of minority faculty, staff and trainees; foundational training on DEI principles; and improving awareness of reporting structure for instances of microaggression and discrimination

University of Kentucky

• Assistant Dean for Inclusive Excellence, College of Public Health

Responsibilities: A key member of the Dean's senior administrative team with oversight for all diversity and inclusion activities which support faculty, staff, and students. The Assistant Dean works collaboratively with other colleges' diversity and inclusion efforts, and the University of Kentucky Vice President for Institutional Diversity, in the development of inter-professional programs and other activities to enhance the diversity of the college and university as a whole.

• International Advisory Council, Office of Associate Provost for Internationalization

Responsibilities: The IAC is the main body comprising of a group of globally-engaged faculty and administrators representing each of the University's 16 colleges, that guides the University of Kentucky's internalization efforts and advises the leadership of the UK International center on issues relating to education, research, outreach and service efforts outside the US.

• Executive Council, College of Public Health

Responsibilities: The CPH Executive Council comprises of all Assistant and Associate Deans within the college and advises the Dean on specific strategies relating to the development and implementation of initiatives amongst students, staff and faculty to ensure a highly efficient, collegial and productive college.

MENTORING/ADVISING (* denotes current mentees)

Post-Doctoral Scientists/Junior Faculty

- Daniel Dibaba (Univ. Kentucky)
- Justin Moore (Augusta Univ)
- Modupe Durojaiye (Ohio State Health Dept.)
- Abby Zhang (Georgia Southern Univ.)
- April Deveaux (Duke University)*
- Malcom Bevel (Duke University)*
- Jessica Islam (Univ. North Carolina)*
- Nosa Osazuwa-Peters (Duke University)*

PhD/MD Students

- Gurudatta Naik
- DeBran Tarver
- Nimish Valvi
- Shama Karanth
- Adaeze Aroh
- Vikash Pernenkil
- Veeral Saraiyal*
- Felicia Lim*
- Jovita Byemerwa*

RESEARCH ACTIVITIES

• Social Determinants of Cancer Health Disparities- Racial, Socio-economic and Healthcare Access: This line of research uses secondary datasets from US and globally to examine how disparities are initiated

MPH/MSPH/BS Students

- Grace Meng
- Kemi Ogunsina
- Swati Shakuja
- Wole Adegbala
- Taylor Wyatt
- Xueyang Zhao
- XiHua Mao
- Mackenzie Fowler
- Pierre Fwelo
- Deborah Adekunle
- Quantez Crowe
- Anjali Gupta*
- Chioma Omeogu*

and perpetuated across the cancer prevention continuum. This line of research has resulted in over 30 manuscripts till date focused on disparities in: cancer risk factors, screening, incidence, treatment and survival. Datasets used for this research include: Surveillance Epidemiology and Ends Results and Medicare linked data, Nationwide Inpatient Sample, NIH AARP Diet and Health dataset, and the Study of Global Ageing and Health. The goal of this research is to identify the social determinants of cancer disparities and inform strategies for improved tailoring of prevention, screening and treatment and an ultimate goal of eliminating disparities in cancer.

- Metabolic Dysregulation and Racial Disparities in Cancer Aggressiveness and Outcome: This line of research involves the use of prospective cohort data (the Reason for Geographic Disparities in Stroke Study) and primary data collection (Mechanisms for Established and Novel Risk Factors for Breast Cancer in Women of African Descent [MEND, PI: Akinyemiju]). The goal is to identify and describe the molecular epidemiology of cancer disparities in people of African descent (African-Americans, Africans) in order to understand the etiology of aggressive cancers in this population. A major risk factor of interest is metabolic dysregulation characterized as obesity, high blood pressure, dyslipidemia and insulin resistance, in the development of aggressive subtypes of cancer and mortality in this population group, above and beyond the impact of socio-economic status and access to healthcare.
- Epigenetic Mechanisms in Cancer Health Disparities: This line of research seeks to improve understanding of epigenetic changes in key cancer genes due to interactions between environmental/lifestyle factors and genetic background. This line of research may provide critical information on the epigenetic dysregulation due to metabolic syndrome and associated risk factors, how these relate to alterations in breast cancer genes, whether these associations differ by race, and if these explain part of the increased aggressiveness of certain cancers in people of African descent. This study utilizes biological samples (blood, tumor and normal) from the multi-center case-control MEND study of newly diagnosed breast cancer patients in Ghana and Nigeria, with matched healthy controls from an NIH funded community-based cohort study of Chronic Kidney Disease in Ghana and Nigeria (PI: Ojo). Clinical, epidemiologic and epigenetic data from this study will be compared with data from African-American and White breast cancer patients in the SEER Residual Tumor Registry database and TCGA.
- Lifestyle Intervention to Improve Metabolic Health and Enhance Cancer Survival. The goal of this study is to determine if an intensive lifestyle (dietary and physical activity) intervention among African-American breast cancer patients will reduce tumor recurrence and improve survival. This clinical trial involves recruiting breast cancer patients 6-24 months post-treatment and randomizing to intervention (12-week low carbohydrate diet plus moderate physical activity sessions) or control (general dietary advice based on AICR guidelines). Baseline and follow-up measures are collected to assess metabolic factors e.g. BMI, waist circumference, fasting blood glucose, cholesterol and triglycerides as well as other biomarkers of chronic inflammation. Passive follow up will occur through the cancer registry for 2 years to ascertain tumor recurrence or mortality and for intervention vs. control group comparisons.

SELECTED PUBLICATIONS (>100 in peer-reviewed journals)

URL for complete list: http://www.ncbi.nlm.nih.gov/pubmed/?term=Tomi+Akinyemiju

AS FIRST AUTHOR

1. Akinyemiju T*, Justin Xavier Moore, Maria Pisu, Suzanne E. Judd, Michael Goodman, James M. Shikany, Virginia J. Howard, Monika Safford, Susan C. Gilchrist. A Prospective Study of Obesity, Metabolic Health and Cancer Mortality among Blacks and Whites. Obesity, 2017.

- 2. Akinyemiju T, Global Burden of Disease Collaborators. The Burden of Primary Liver Cancer and Underlying Etiologies from 1990 to 2015 at the Global, Regional, and National level: Results from the Global Burden of Disease Study. JAMA Oncol 2017, Oct. PMID: 28983565
- 3. Flowler M and **Akinyemiju T***. Meta-Analysis of the Association Between Dietary Inflammatory Index (DII) and Cancer Outcomes. Int J Cancer, 2017. PMID: 28795402
- Akinyemiju T*, Ogunsina K, Sakhuja S, Ogbhodo V, Braithwaite D. Life-course socioeconomic status and breast and cervical cancer screening: analysis of the WHO's Study on Global Ageing and Adult Health (SAGE). BMJ Open. 2016 Nov 22;6(11):e012753. doi: 10.1136/bmjopen-2016-012753. PubMed PMID: 27881528; PubMed Central PMCID: PMC5129035.
- 5. Akinyemiju T*, Zhao X, Sakhuja S, Jolly P. Life-course socio-economic status and adult BMI in Ghana; analysis of the WHO study on global ageing and adult health (SAGE). Int J Equity Health. 2016 Nov 15;15(1):185. PubMed PMID: 27846854; PubMed Central PMCID: PMC5111182.
- Akinyemiju T*, Ogunsina K, Okwali M, Sakhuja S, Braithwaite D. Lifecourse socioeconomic status and cancer-related risk factors: Analysis of the WHO study on global ageing and adult health (SAGE). Int J Cancer. 2017 Feb 15;140(4):777-787. doi: 10.1002/ijc.30499. PubMed PMID: 27813060.
- Akinyemiju T*, Sakhuja S, Vin-Raviv N. Response to Letter to the Editor: Vitamin D status may help explain racial disparities in breast cancer hospitalization outcomes. Cancer Epidemiol. 2016 Dec;45:175-176. doi: 10.1016/j.canep.2016.09.009. PubMed PMID: 27697408.
- Akinyemiju T*, Meng Q, Vin-Raviv N. Race/ethnicity and socio-economic differences in colorectal cancer surgery outcomes: analysis of the nationwide inpatient sample. BMC Cancer. 2016 Sep 5;16:715. doi: 10.1186/s12885-016-2738-7. PubMed PMID: 27595733; PubMed Central PMCID: PMC5011892.
- 9. Akinyemiju T*, Tehranifar P, Flom JD, Liao Y, Wei Y, Terry MB. Early life growth, socioeconomic status, and mammographic breast density in an urban US birth cohort. Ann Epidemiol. 2016 Aug;26(8):540-545.e2. doi: 10.1016/j.annepidem.2016.06.011. PubMed PMID: 27497679.
- Akinyemiju T*, Moore JX, Pisu M, Lakoski SG, Shikany J, Goodman M, Judd SE. A prospective study of dietary patterns and cancer mortality among Blacks and Whites in the REGARDS cohort. Int J Cancer. 2016 Nov 15;139(10):2221-31. doi: 10.1002/ijc.30287. PubMed PMID: 27459634; PubMed Central PMCID: PMC5041524.
- 11. Akinyemiju T*, Meng Q, Vin-Raviv N. Association between body mass index and in-hospital outcomes: Analysis of the nationwide inpatient database. Medicine (Baltimore). 2016 Jul;95(28):e4189. doi: 10.1097/MD.000000000004189. PubMed PMID: 27428218; PubMed Central PMCID: PMC4956812.
- 12. Akinyemiju T*, Sakhuja S, Vin-Raviv N. Racial and socio-economic disparities in breast cancer hospitalization outcomes by insurance status. Cancer Epidemiol. 2016 Aug;43:63-9. doi: 10.1016/j.canep.2016.06.011. PubMed PMID: 27394678.
- 13. Akinyemiju T*, Moore JX. Data on burden of comorbidities in the united states and medicaid expansion status. Data Brief. 2016 May 20;8:120-2. doi: 10.1016/j.dib.2016.05.019. PubMed PMID: 27294179; PubMed Central PMCID: PMC4889874.
- 14. Akinyemiju T*, Moore JX, Ojesina AI, Waterbor JW, Altekruse SF. Racial disparities in individual breast cancer outcomes by hormone-receptor subtype, area-level socio-economic status and healthcare resources. Breast Cancer Res Treat. 2016 Jun;157(3):575-86. doi: 10.1007/s10549-016-3840-x. PubMed PMID: 27255533; PubMed Central PMCID: PMC4912843.

- Akinyemiju T*, Jha M, Moore JX, Pisu M. Disparities in the prevalence of comorbidities among US adults by state Medicaid expansion status. Prev Med. 2016 Jul;88:196-202. doi: 10.1016/j.ypmed.2016.04.009. PubMed PMID: 27095325; PubMed Central PMCID: PMC4902718.
- 16. Akinyemiju T*, Waterbor JW, Pisu M, Moore JX, Altekruse SF. Availability of Healthcare Resources and Colorectal Cancer Outcomes Among Non-Hispanic White and Non-Hispanic Black Adults. J Community Health. 2016 Apr;41(2):296-304. doi: 10.1007/s10900-015-0096-z. PubMed PMID: 26446012.
- 17. Akinyemiju T*, Pisu M, Waterbor JW, Altekruse SF. Socioeconomic status and incidence of breast cancer by hormone receptor subtype. Springerplus. 2015 Sep 17;4:508. doi: 10.1186/s40064-015-1282-2. PubMed PMID: 26405628; PubMed Central PMCID: PMC4573746.
- Akinyemiju T*, Moore JX, Altekruse SF. Breast cancer survival in African-American women by hormone receptor subtypes. Breast Cancer Res Treat. 2015 Aug;153(1):211-8. doi: 10.1007/s10549-015-3528-7. PubMed PMID: 26250393.
- Akinyemiju T*, Vin-Raviv N, Chavez-Yenter D, Zhao X, Budhwani H. Race/ethnicity and socio-economic differences in breast cancer surgery outcomes. Cancer Epidemiol. 2015 Oct;39(5):745-51. doi: 10.1016/j.canep.2015.07.010. PubMed PMID: 26231096.
- Akinyemiju T*, McDonald JA, Lantz PM. Health care access dimensions and cervical cancer screening in South Africa: analysis of the world health survey. BMC Public Health. 2015 Apr 15;15:382. doi: 10.1186/s12889-015-1686-5. PubMed PMID: 25886513; PubMed Central PMCID: PMC4404041.
- Akinyemiju T, Genkinger JM, Farhat M, Wilson A, Gary-Webb TL, Tehranifar P. Residential environment and breast cancer incidence and mortality: a systematic review and meta-analysis. BMC Cancer. 2015 Mar 28;15:191. doi: 10.1186/s12885-015-1098-z. PubMed PMID: 25885593; PubMed Central PMCID: PMC4396806.
- Akinyemiju T*, McDonald JA, Tsui J, Greenlee H. Adherence to cancer prevention guidelines in 18 African countries. PLoS One. 2014 Aug 21;9(8):e105209. doi: 10.1371/journal.pone.0105209. PubMed PMID: 25144291; PubMed Central PMCID: PMC4140739.
- 23. Akinyemiju T*, Soliman AS, Copeland G, Banerjee M, Schwartz K, Merajver SD. Trends in breast cancer stage and mortality in Michigan (1992-2009) by race, socioeconomic status, and area healthcare resources. PLoS One. 2013 Apr 29;8(4):e61879. doi: 10.1371/journal.pone.0061879. PubMed PMID: 23637921; PubMed Central PMCID: PMC3639257.
- 24. Akinyemiju T*. Risk of asynchronous contralateral breast cancer: multiple approaches for a complex issue. Gland Surg. 2013 May;2(2):110-3. doi: 10.3978/j.issn.2227-684X.2013.05.02. PubMed PMID: 25083468; PubMed Central PMCID: PMC4115727.
- 25. Akinyemiju T*, Soliman AS, Johnson NJ, Altekruse SF, Welch K, Banerjee M, Schwartz K, Merajver S. Individual and neighborhood socioeconomic status and healthcare resources in relation to black-white breast cancer survival disparities. J Cancer Epidemiol. 2013;2013:490472. doi: 10.1155/2013/490472. PubMed PMID: 23509460; PubMed Central PMCID: PMC3590635.
- 26. Akinyemiju T*. Socio-economic and health access determinants of breast and cervical cancer screening in lowincome countries: analysis of the World Health Survey. PLoS One. 2012;7(11):e48834. doi: 10.1371/journal.pone.0048834. PubMed PMID: 23155413; PubMed Central PMCID: PMC3498259.

 Akinyemiju T*, Soliman AS, Yassine M, Banerjee M, Schwartz K, Merajver S. Healthcare access and mammography screening in Michigan: a multilevel cross-sectional study. Int J Equity Health. 2012 Mar 21;11:16. doi: 10.1186/1475-9276-11-16. PubMed PMID: 22436125; PubMed Central PMCID: PMC3414751.

AS SENIOR AUTHOR

- Naik G¹, Akinyemiju T*. Disparities in hospitalization outcomes among African-American and White prostate cancer patients. Cancer Epidemiol. 2017 Feb;46:73-79. doi: 10.1016/j.canep.2016.12.001. PubMed PMID: 28056390.
- Adegbala O[¶], Martin KD, Otuada D, Akinyemiju T*. Diabetes Mellitus with Chronic Complications in Relation to Carotid Endarterectomy and Carotid Artery Stenting Outcomes. J Stroke Cerebrovasc Dis. 2017 Jan;26(1):217-224. doi: 10.1016/j.jstrokecerebrovasdis.2016.09.012. PubMed PMID: 27810149.
- Okwali M[¶], Greenlee H, Ginindza T, Jolly P, Akinyemiju T*. Adherence to cancer prevention guidelines in South Africa is associated with health care access. Int Health. 2016 May;8(3):211-9. doi: 10.1093/inthealth/ihv044. PubMed PMID: 26198028.
- 31. Moore, JX[¶], Chaudhary N, Akinyemiju T*. Metabolic Syndrome Prevalence by Race/Ethnicity and Sex in the United States, National Health and Nutrition Examination Survey, 1988-2012. Preventing Chronic Diseases, In Press

AS CONTRIBUTING AUTHOR

- 32. Forouzanfar MH, Liu P, Roth GA, Ng M, Biryukov S, Marczak L, Alexander L, Estep K, Hassen Abate K, Akinyemiju TF, Ali R, Alvis-Guzman N, Azzopardi P, Banerjee A, Bärnighausen T, Basu A, Bekele T, Bennett DA, Biadgilign S, Catalá-López F, Feigin VL, Fernandes JC, Fischer F, Gebru AA, Gona P, Gupta R, Hankey GJ, Jonas JB, Judd SE, Khang YH, Khosravi A, Kim YJ, Kimokoti RW, Kokubo Y, Kolte D, Lopez A, Lotufo PA, Malekzadeh R, Melaku YA, Mensah GA, Misganaw A, Mokdad AH, Moran AE, Nawaz H, Neal B, Ngalesoni FN, Ohkubo T, Pourmalek F, Rafay A, Rai RK, Rojas-Rueda D, Sampson UK, Santos IS, Sawhney M, Schutte AE, Sepanlou SG, Shifa GT, Shiue I, Tedla BA, Thrift AG, Tonelli M, Truelsen T, Tsilimparis N, Ukwaja KN, Uthman OA, Vasankari T, Venketasubramanian N, Vlassov VV, Vos T, Westerman R, Yan LL, Yano Y, Yonemoto N, Zaki ME, Murray CJ. Global Burden of Hypertension and Systolic Blood Pressure of at Least 110 to 115 mm Hg, 1990-2015. JAMA. 2017 Jan 10;317(2):165-182. doi: 10.1001/jama.2016.19043. PubMed PMID: 28097354.
- 33. Zhang X[¶], Li Y, Akinyemiju T, Ojesina AI, Buckhaults P, Liu N, Xu B, Yi N. Pathway-Structured Predictive Model for Cancer Survival Prediction: A Two-Stage Approach. Genetics. 2017 Jan;205(1):89-100. doi: 10.1534/genetics.116.189191. PubMed PMID: 28049703; PubMed Central PMCID: PMC5223526.
- 34. Vin-Raviv N, **Akinyemiju T**, Meng Q, Sakhuja S, Hayward R. Marijuana use and inpatient outcomes among hospitalized patients: analysis of the nationwide inpatient sample database. Cancer Med. 2017 Jan;6(1):320-329. doi: 10.1002/cam4.968. PubMed PMID: 27891823; PubMed Central PMCID: PMC5269570.
- 35. Li Y, Zhang X, **Akinyemiju T**, Ojesina A, Szychowski J Liu N, Yi N. A two-stage approach for combining gene expression and mutation with clinical data improves survival prediction in myelodysplastic syndromes and ovarian cancer. Journal of Bioinformatics and Genomics, 2016, 1-1; doi: 10.18454/jbg.2016.1.1.2
- 36. GBD 2015 Maternal Mortality Collaborators. Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016 Oct 8;388(10053):1775-1812. doi: 10.1016/S0140-6736(16)31470-2. PubMed PMID: 27733286; PubMed Central PMCID: PMC5224694.

- 37. GBD 2015 Child Mortality Collaborators.. Global, regional, national, and selected subnational levels of stillbirths, neonatal, infant, and under-5 mortality, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016 Oct 8;388(10053):1725-1774. doi: 10.1016/S0140-6736(16)31575-6. PubMed PMID: 27733285; PubMed Central PMCID: PMC5224696.
- 38. GBD 2015 Risk Factors Collaborators.. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016 Oct 8;388(10053):1659-1724. doi: 10.1016/S0140-6736(16)31679-8. PubMed PMID: 27733284.
- 39. GBD 2015 Mortality and Causes of Death Collaborators.. Global, regional, and national life expectancy, allcause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016 Oct 8;388(10053):1459-1544. doi: 10.1016/S0140-6736(16)31012-1. PubMed PMID: 27733281.
- 40. GBD 2015 SDG Collaborators.. Measuring the health-related Sustainable Development Goals in 188 countries: a baseline analysis from the Global Burden of Disease Study 2015. Lancet. 2016 Oct 8;388(10053):1813-1850. doi:10.1016/S0140-6736(16)31467-2. PubMed PMID: 27665228; PubMed Central PMCID: PMC5055583.
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KEY: * Senior/Corresponding author; ¶Supervised student manuscript

AWARDS and HONORS

ACTIVE

Title: A Role of Multilevel Healthcare Access Dimensions in Ovarian Cancer Disparities (PI: Akinyemiju) **Time Commitment:** 15% 1.8 calendar months

Tomi F. Akinyemiju CV

Supporting Agency: NCI Performance Period: 2/1/2019-4/30/2024 Level of Funding: \$490,638

Project Goals: Our study will comprehensively evaluate all five dimensions of healthcare access (HCA) among Black and White patients to identify and quantify the specific factors contributing to the striking racial differences in OC care and survival. More specifically, we will utilize data from SEER-Medicare (8,060 OC patients) along with primary survey data from a population-based sample of 1,010 OC patients, linked with several existing datasets (e.g., American Community Survey, Area Healthcare Resource File), to characterize racial differences in associations between each HCA dimension and three outcomes: quality of initial treatment and supportive care, quality of life based on patient-reported outcomes in prevalent yet manageable symptoms, and survival. We will evaluate HCA dimensions across patient, neighborhood, provider and hospital levels, and utilize hierarchical regression models with random effects to account for clustering, and multilevel structural equation models to estimate the total, direct and indirect effect of race on treatment mediated through HCA dimensions.

Title: Metabolic Syndrome and Epigenetic Markers of Breast Cancer in Nigerian Women (PI: Akinyemiju) Time Commitment: 60% 7.2 calendar months Supporting Agency: FIC Performance Period: 9/28/2016-8/31/2021

Level of Funding: \$490,638

Project Goals: The aims of this project are to recruit 350 incident breast cancer cases from Nigerian tertiary hospitals, and obtain data on 350 age-matched healthy controls recruited through the H3-Africa Kidney Disease Research Network; determine the prevalence of MetS among study controls, and establish the association between MetS and breast cancer diagnosis overall, and by breast cancer sub-type; identify differentially methylated genes between tumor and adjacent normal breast tissue in women and evaluate differences by MetS status using genome-wide DNA methylation.

Title: Cancer Center Support Grant (CCSG) (PI: Kastan) Time Commitment: 3% 0.36 calendar months Supporting Agency: NCI Performance Period: 1/1/2020-12/31/2024 Level of Funding: \$3,729,338 Project Cools: The Duke Cancer Institute was created as a

Project Goals: The Duke Cancer Institute was created as a novel and single entity to facilitate optimal integration of all cancer-related activities at Duke Medicine (now Duke Health). As a formal and responsible entity embedded in both Duke University and the Duke Health System, the DCI provides a single leadership team who are responsible for oversight of all cancer-related clinical and research activities, with authority and responsibility for all aspects of cancer care, cancer-related research, and cancer-related education across Duke University and the Duke Health System. Tobacco, obesity and infectious agents were identified as major risk factors and cancer disparities identified as a major crosscutting challenge. This analysis guides our community engagement, community-based interventions, cancer care services, cancer health policy advocacy and research. DCI members conduct ground-breaking, multi-level research on these cancers and risk factors including research directed at understanding the social, structural and biological drivers of cancer disparities, as well as developing and implementing interventions.

Title: DIRECT - Diversifying Research and Experiential Learning in Cancer Training (PI: Akinyemiju) **Time Commitment:** 6.5% 0.78 calendar months

Supporting Agency: Emerson Collective

Performance Period: 4/15/2021-8/1/2024

Level of Funding: \$272,092

Project Goals: If successful, this training program will have the positive societal benefit of significantly improving the pipeline of Black students entering graduate careers in STEM fields. By focusing on key thematic and methodological training coupled with intensive mentoring and practical support, we will address the major challenges of lack of research, exposure and experience faced by many minority students in graduate school, which are also - key predictors of success. This training model can be replicated across other institutions to further multiply the effect.

Tomi F. Akinyemiju CV

PENDING

Title: Air pollution and lung cancer in Black/African Americans (PI: Hyslop) Time Commitment: 5% 0.6 calendar months Supporting Agency: City of Hope / NIH Performance Period: 9/1/2021-8/31/2027 Level of Funding: \$50,000

Project Goals: Relative to Anglos, Blacks/African Americans are more likely to start smoking at a later age and smoke fewer cigarettes per day. Despite having less risk - Blacks/African have >40% increased mortality and are diagnosed with lung cancer at a significantly earlier age than Anglos. Together, with our computational scientists, we aim to develop predictive risk models and improve early detection of lung cancer in Black/African Americans.

Title: Immune Exhaustion and Breast Cancer Aggressiveness in Women of African Descent (PI: Akinyemiju) Time Commitment: 30% 3.6 calendar months Supporting Agency: NIH Performance Period: 12/1/2021-11/30/2026 Level of Funding: \$490,818

Project Goals: The goal of the research is to determine if obesity is associated with immune exhaustion biomarkers, if there is an association between immune exhaustion and tumor micro-environment, and if immune exhaustion and/ or epigenetic signature is associated with risk of ER-/TNBV. The study also aims to determine if there is an epigenetic signature of metabolic inflammation and if it is a signature modified by infection burden.

Title: Delineating the underlying reasons for the racial disparity in gastric cancer incidence in the United States (PI: Epplein)

Time Commitment: 10% 1.2 calendar months Supporting Agency: NIH Performance Period: 9/1/2021-8/31/2026 Level of Funding: \$484,847

Project Goals: Our long-term goal is to reduce the burden of gastric cancer, a substantially disparate and often fatal, but highly preventable, disease, in the US. Findings from this study will be used to build a gastric cancer-risk-assessment model for H. pylori eradication and gastric cancer prevention programs in the US.

Title: Using latent class and causal mediation analyses to identify drivers of head and neck cancer disparities in the US (PI: Osazuwa-Peters)

Time Commitment: 5% 0.6 calendar months **Supporting Agency:** NIH **Performance Period:** 4/1/2022-3/31/2024

Level of Funding: \$100,000

Project Goals: This proposed study will provide useful data that will form the basis for two future R01 projects. First, leveraging Duke University's central role in PCORnet, we will follow a prospective/longitudinal, national cohort of adults for 3 years and compare individuals who develop HNC versus those who do not, and we will identify the impact of genetic, environmental and lifestyle factors on incident HNC using polygenic risk scores and gene by environment interaction analysis.

Title: CCSG Childhood Cancer Disparities (PI: Check) Time Commitment: 5% 0.6 calendar months Supporting Agency: NIH Performance Period: 9/1/2021-8/31/2022 Level of Funding: \$38,069

Project Goals: Over the past several decades, the five-year survival rate among children diagnosed with cancer has steadily improved. Today, approximately 85% of children diagnosed with cancer achieve long-term survival or cure. Improvements in survival are the result of more effective but complex treatment regimens that can cause late effects (e.g., cardiopulmonary disease, second malignancies) for childhood cancer survivors throughout their

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lifetime. By 20 years after cancer diagnosis, about 30% of survivors diagnosed 1970-1999 report a serious, lifethreatening, or fatal chronic condition. Black and socioeconomically disadvantaged survivors of childhood cancer are especially likely to develop such conditions, in part due to suboptimal follow-up care. Black and socioeconomically disadvantaged survivors have the highest likelihood of being lost to follow-up and thus suffering preventable late effects. Although several studies have developed and evaluated interventions aimed at improving overall adherence to follow-up care recommendations among survivors of childhood cancer, none have specifically focused on addressing racial or socioeconomic disparities in follow-up care. As the childhood cancer survivor population grows, it is essential to address disparities in follow-up care that contribute to disparate long-term outcomes.

Title: An Academic-Primary Care Clinic Partnership to Address Health Literacy and Cancer Prevention in Rural Persistent Poverty Counties in Southeastern North Carolina (PI: Noonan)

Time Commitment: 2.5% 0.3 calendar months

Supporting Agency: NIH

Performance Period: 9/1/2021-8/31/2022

Level of Funding: \$58,563

Project Goals: The overall objective of this one-year supplement opportunity is to increase the capacity of our clinic partner Destiny Total Health to implement health literacy improvements that will ultimately lead to the increases in uptake of interventions that address modifiable behavioral risk factors among patients. Specifically for this supplement we will focus on implementing two health literacy improvements that are key recommendations of the Agency for Healthcare Research and Quality (AHRQ) Universal Health Literacy Universal Precautions toolkit, 6 Making Effective Referrals and Patient empowerment using Ask Me 3. Both interventions will be used to improve the uptake of smoking cessation resources and services in the region.

Title: TRANSCEND (PI: Akinyemiju) Time Commitment: 2% 0.24 calendar months Supporting Agency: NIH Performance Period: 9/1/2021-8/31/2022 Level of Funding: \$57,961

Project Goals: We propose a Transformative Partnerships to Promote Cancer Screening Equity by Extending the Network of Lay Community Health Ambassadors in North Carolina Distressed Counties (TRANSCEND) study. We will partner with the NC CCN to extend the network of trained Community Health Ambassadors in Tier 1 counties in South-Eastern NC to ensure that individuals are linked to cancer screening programs Aim 2: Ensure sustainability by partnering with traditional (FQHCs, health departments) and non-traditional (churches, Native American tribal groups, barber shops and beauty salons) to tailor, promote and target cancer screening education and navigation in Tier 1 communities Aim 3: Quantitatively evaluate the impact of the CHA education and navigation training program on cancer screening rates, and qualitatively identify additional structural barriers to screening using a mixed-methods data collection approach

Title: Implementing Evidence-Based Interventions to Enhance Equity in Oncology Genomic Testing (MPI: Akinvemiju (contact PI), Bosworth, Check)

Time Commitment: 15% 1.8 calendar months

Supporting Agency: NIH

Performance Period: 4/1/2022-3/31/2027

Level of Funding: \$1,057,852

Project Goals: Racial disparities in cancer mortality have been documented in the US for many decades and are a public health crisis. In 2021, there were significant racial disparities among most prevalent cancers: female breast, prostate, lung and colorectal cancers, the top cancers among US adults, accounting for about 50% of all cancer diagnosis and 45% of deaths. For instance, mortality rates are 40% higher for Black versus White breast cancer patients and 16% higher for Black versus White prostate cancer patients. Disparities in ovarian cancer mortality are even more striking, with Black patients experiencing a 27% decline in survival while White patients experienced a 43% improvement in the past decade. While the root causes of cancer disparities are multifactorial and include disproportionate socio-economic and healthcare access barriers, there is growing evidence that cancer mortality

disparities will persist and widen due to unequal access to genomic testing and associated novel targeted therapies. This proposal aims to enhance equity in genomic testing among Black cancer patients by increasing the adoption of evidence-based interventions at the patient, provider, and health system level. We propose to test a multilevel evidence-based intervention that addresses patient (financial burden and genetic counseling), provider (academic detailing) and health system referral (EHR flag based on clinical indication) interventions using a stepped wedge cluster randomized clinical trial with transition periods across six cancer clinics associated with a large academic healthcare system.

Title: Cholesterol Metabolism and Metastatic Breast Cancer in Women of African Descent (MPI: Akinyemiju (contact), Jackson)

Time Commitment: 5% 0.6 calendar months

Supporting Agency: Susan G. Komen Breast Cancer Foundation

Name/Address Contracting/Grants Officer: MissionGrantsAdmin@komen.org

Performance Period: 1/1/2022-12/31/2024

Level of Funding: \$128,911

Project Goals: We will examine the concentrations of pro-carcinogenic oxysterol (e.g., 27-OHC) in MBC risk among Black women. By studying Black BC patients in West Africa and the US, our findings will be relevant to Black women in Africa and globally who are descendants of the West African victims of the trans-Atlantic slave trade. By elucidating how social, genetic and immune factors impact cholesterol metabolism to influence MBC risk and prognosis, our study will shed light on the complex associations of race with BC of all subtypes.

Title: Capturing Patient Reported Data to Impact Disparities in Metastatic Breast Cancer (PI: Check) **Time Commitment:** 5% 0.6 calendar months

Supporting Agency: UNC-CH / Susan G. Komen Breast Cancer Foundation

Name/Address Contracting/Grants Officer: Susan Wolf susan wolf@med.unc.edu

Performance Period: 1/1/2022-12/31/2024

Level of Funding: \$52,474

Project Goals: Our long term research goal is to develop a comprehensive understanding of the relationships among SDOH, biomarkers of allostatic load, and disparities in breast cancer outcome that informs targeted screening and intervention to prevent breast cancer deaths among Black women and others at risk. Our short term objective in this application is to characterize key social determinants of cancer outcomes and levels of allostatic load among diverse patients with MBC, to follow their use and experiences of cancer care over time using electronic patient-reported outcomes, and to develop a scalable, pragmatic, inclusive research model for collection of MBC patient data related to social determinants of health over time with the patient voice at its center.

Title: Integrating Biology and Access to Understand Metastatic Breast Cancer Disparities (PI: Hyslop) **Time Commitment:** 5% 0.6 calendar months

Supporting Agency: UNC-CH / Susan G. Komen Breast Cancer Foundation

Name/Address Contracting/Grants Officer: Chandra Caldwell ccaldwel@email.unc.edu

Performance Period: 12/1/2021-11/30/2024

Level of Funding: \$107,527

Project Goals: The goals of this project are to develop statistical modeling approaches to breast cancer disparities, specifically to develop ways to link social determinants of health and molecular measures of cancer. This method will allow us to identify how socio-economic disparities contribute to disrupted immune signaling and could aid in identifying prevention and intervention strategies for vulnerable populations.

R01 CA244607Akinyemiju (PI) 6/15/2021-7/31/2026NIH/NCI\$3,969,438 (Years 1-5 direct)Structural Racism and Racial Disparities in Breast Cancer Mortality\$3,969,438 (Years 1-5 direct)

Black women continue to experience higher breast cancer mortality rates than any other race/ethnic group in the US, and current knowledge regarding this mortality gap does not adequately explain its magnitude; thus, effective strategies to address the problem remain elusive. We propose to investigate a highly understudied risk factor – structural racism, which we hypothesize is biologically embodied in a way that alters key immune, metabolic and epigenetic pathways important in breast cancer etiology. Our study will determine whether, and

to what extent, exposure to structural racism alters key biological pathways that predicts increased breast cancer mortality risk among Black women relative to White women, thus advancing our understanding of racial disparities in breast cancer and potentially other types of cancers as well.

PREVIOUS

Title: Sociome: Integrating Social Determinants of Health and Multi-Omic Data to Predict Cancer Prognosis Time Commitment: 4% 0.48 calendar months Supporting Agency: Carnegie Mellon University / NIH Performance Period: 11/1/2020-6/20/2021 Level of Funding: \$5,952 Project Goals: To generate a comprehensive cohort for cancer patients characterized with social determinants

Project Goals: To generate a comprehensive cohort for cancer patients characterized with social determinants of health and genomic data across multiple levels. Using this well characterized cohort, to generate matching learning/deep leaning models to create predictive models for cancer prognosis. These models will inform dynamically queryable mechanistic model to predict the impact of potential policy or other interventions on cancer prognosis.

Title: BASIC Engage: Engaging Community Partners and Basic Scientists in Collaborative Research **Time Commitment:** 3% 0.36 calendar months

Supporting Agency: NCI

Performance Period: 1/1/2020-12/31/2024

Level of Funding: \$92,902

Project Goals: Collectively this program will provide sustainable infrastructure to facilitate and support high impact community and basic science research collaborations, serve as an exemplar for ongoing community and research collaborations across the translational spectrum and serve as a model that can adapted by other academic health centers and cancer centers.

Title: Developing and Validating a Multi-Dimensional Healthcare Access Survey Instrument (Admin Suppl) (PI: Akinyemiju)

Supporting Agency: NCI

Performance Period: 9/1/2020-8/31/2021

Level of Funding: \$97,642

To address the lack of validated healthcare access survey instruments in the literature, we will: 1) examine existing survey instruments addressing any aspect of healthcare access, 2) conduct focus groups and concept elicitation with Black, White and Hispanic cancer survivors, 3) create a comprehensive healthcare access survey bank and pre-test using cognitive interviews among ovarian cancer patients, and 4) conduct psychometric analysis of survey items and revise survey bank as needed to create a comprehensive healthcare access survey instrument informed by a racially diverse group of patients

Title: Stress-related inflammation and racial disparities in ovarian cancer (Diversity Suppl) (Deveaux) Supporting Agency: NCI

Performance Period: 05/01/2020 – 04/30/2021

Level of Funding: \$146,296

Given the increased risk of stress and inflammation in African American (AA) women, and the association with increased risk of Pelvic Inflammatory Disease (PID), it is plausible that PID is a potential biological mediator of the disparity between AA and white women with ovarian cancer. This minority supplement study will examine the prevalence of perceived discrimination and psychosocial stress among AA and white women with OC as well as the association of these factors with PID. The results of this study will clarify the role of social and biological mechanisms that contribute to OC racial disparities

Loan Repayment Program Grant 08/01/2016-09/30/2018

Description: A competitive loan repayment program grant given to meritorious scientists with ongoing research projects in the area of health disparities

UAB School of Public Health Back of the Envelope Award 12/01/2015-12/01/2017 \$50,000 (direct)

Lifestyle Intervention to Ensure Cancer Survival

Description: This project aims to test the feasibility of an intensive lifestyle intervention using low-carbohydrate diet and moderate physical activity to eliminate components and biomarkers of metabolic syndrome among African-American women with Triple Negative Breast Cancer.

UAB Comprehensive Cancer Center Faculty Pilot Grant 11/1 2015- 10/31 2017 \$50,000 Epigenetic markers of aggressive breast cancers

Description: The goal of this pilot grant is to procure breast cancer tumor tissue samples from the Surveillance Epidemiology and Ends Results Tumor Biorepository and characterize global DNA methylation and miRNA changes associated with breast cancer in African-American and European-American women.

PEER REVIEW

Journals and Book Chapter

- Associate Editor: BMC Public Health, Medicine, PLOS One
- Ad Hoc Reviewer (selected): JAMA, American Journal of Public Health; Oncotarget; Cancer Causes and Control; Breast Cancer Research and Treatment; International Journal of Cancer; PLoS One; BMC Public Health; BMC Cancer; Journal of Cancer Epidemiology; International Journal of Women's Health; Journal of Cancer Education; European Journal of Cancer Care; Journal of Onco Targets and Therapy; British Journal of Applied Science and Technology; Western Journal of Nursing Research; J Healthcare for the Poor and Underserved; J Cancer Education; International Journal of Public Health, Journal of the National Cancer Institute, British Journal of Cancer
- Book chapter: Epidemiology Theory, Research and Practice; Epigenetic Biomarkers in Cancer Epidemiology

Grant Reviews/ Study Section

- NCI Exploratory Grant (P20) in Low and Middle-Income Countries
- NIH International Research Scientist Development Award (K01)
- NIH Emerging Global Leader Award (K43)
- NIH ZRG1 OBT Cancer Health Disparities
- Cancer Research UK Post-doctoral fellowships
- NIH/Fogarty International Center International and Cooperative Projects-1 (ICP1)
- National Science Foundation Graduate Research Fellowship •
- NCI ZMD1 NIMHD Career Development Award Review Panel

CONFERENCE PRESENTATIONS AND INVITED TALKS

INVITED TALKS

- Metabolic dysregulation as a potential cause of cancer health disparities. Georgia State University Molecular Basis of Disease lecture series. Feb 2018
- American Public Health Association Annual Meeting. Dietary patterns and Cancer mortality among Older Blacks and Whites in the REGARDS cohort. October 2016
- Racial Disparities in Breast Cancer Risk Factors. Susan G. Komen Lunch and Learn Seminar, October 2016
- Roundtable panel discussion at the 2016 Society for Epidemiologic Research. Career development opportunities in epidemiology for students and early career professionals. Miami Florida, June 2016

- American Society for Preventive Oncology International Issues in Cancer Breakfast Session. Opportunities and Challenges in Global Cancer Research. Columbus Ohio, March 2016
- International Breast Cancer Prevention Symposium, Rennes, France 2011. The Influence of Socio-Economic Status and Health Care Access on the Association Between Race and Breast Cancer Survival
- Black Graduate Student Symposium, Michigan State University. February 2005. How does social support and disease progression affect psychological well-being in HIV/AIDS affected African Americans?
- UAB Graduate Biomedical Sciences Program. Measurement error and the potential for residual confounding in race and health outcomes. Mastering the Art of Reproducible Science Seminar, October 2016
- Demystifying Breast Cancer. National Meeting of the Pastor's Wife Forum. Dallas, Texas. 2014
- Breast Cancer in Women of Color Conference, New York City. Demystifying cancer research. October 2013

CONFERENCE POSTER PRESENTATIONS (selected)

- Taylor Wyatt¶, Vikash Pernekil¶, Tomi Akinyemiju. Trends in breast and colorectal cancer screening among US adults by race, healthcare coverage, and SES before, during, and after the Great Recession. 2016 UAB Comprehensive Cancer Center Research Retreat
- Vikash Pernekil¶, Taylor Wyatt¶, Tomi Akinyemiju. Smoking and obesity trends among US adults by race and SES before, during and after the great recession and affordable care act rollout. 2016 UAB Comprehensive Cancer Center Research Retreat
- DeBran Tarver¶, Tomi Akinyemiju. Racial and socioeconomic disparities in hospitalization outcomes among adolescent and young adults with Acute Lymphoblastic and Acute Myeloid Leukemia. 2016 UAB Comprehensive Cancer Center Research Retreat 2016
- Tomi Akinyemiju, Howard Weiner, Maria Pisu. Racial disparities in cancer related risk factors and risk of major cancers. 2016 Faculty Development Grant Poster Session
- American Society for Preventive Oncology conference, Memphis Tennessee 2013. Titled: Racial disparities in breast cancer survival: impact of area SES and healthcare resources
- Michigan Epidemiology Conference, Ann Arbor, MI 2011. Titled: Perception of Risk and its Association with Cancer Screening Behaviors among African-Americans in Michigan
- University of Michigan Department of Epidemiology Doctoral Day Conference, Ann Arbor, MI 2011. Titled: Neighborhood Healthcare Access and Breast Cancer Mortality Trend
- American Association of Public health Annual meeting, Philadelphia, PA 2005. Titled: Impact of financial dependence on condom negotiation in low SES African American women.
- Michigan Undergraduate research Forum, Capitol building, Lansing MI 2005. Research titled: The effects of systemic interleukin-1β on tyrosine hydroxylase and IL-1 receptor mRNA in noradrenergic regions of the brain stem.
- Columbia University School of Public Health Chronic Disease Cluster Seminar. Title: Health Disparities in Chronic Disease. March 2013

COMMUNITY ENGAGEMENT

- Susan G. Komen North Central Alabama Affiliate, 2016-2017
- Member, Research Advisory Group Southeast Michigan Partners Against Cancer, 2010-2011
- Crisis Volunteer at the Lansing Area AIDS Network, 2006
- Volunteer at Gramium NGO at Kulithalai, Tamil Nadu province, India 2005
- Mentor: Boy's and Girl's Club of Lansing 2005
- McNair/SROP scholarship program, 2004
- Volunteer at The Listening Ear (Crisis Counseling Center), Lansing MI, 2003-2005

PROFESSIONAL ORGANIZATION MEMBERSHIP

- American Public Health Association
- Society for Epidemiologic Research
- American Association for Cancer Research
- American Society for Preventive Oncology
- AORTIC: The African Organization for Research and Training in Cancer

OTHER PROFESSIONAL/LEADERSHIP ACTIVITIES AND TRAINING

- Member, University of Michigan Institutional Review Board for Health
- Judge, UAB Department of Medicine Medical Students Research Showcase
- Judge, UAB Sparkman Center for Global Health- Global Health Showcase Competition
- Judge, UAB Comprehensive Cancer Center Annual Retreat
- Mentor, UAB Medical School Summer Research Project
- Research Outreach, Young Breast Cancer Survivor Network
- AACR Integrative Molecular Epidemiology Workshop
- Mentor, UAB Minority Health and International Research Training Program
- Faculty Mentor, Mock World Health Organization, University of Kentucky
- Faculty Reviewer, Major Awards Nomination, University of Kentucky