

CURRICULUM VITAE

JOSHUA J. JOSEPH, M.D., FAHA

The Ohio State University Wexner Medical
Division of Endocrinology, Diabetes and Metabolism
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CURRENT APPOINTMENTS

2016-present Assistant Professor of Medicine
Division of Endocrinology, Diabetes and Metabolism
Principal Investigator, Diabetes and Metabolism Research Center
The Ohio State University Wexner Medical Center

EDUCATION AND TRAINING

2013-2016 Fellowship, Christopher D. Saudek M.D. Fellow in Diabetes Research
Division of Endocrinology, Diabetes and Metabolism, Johns Hopkins University
School of Medicine, Baltimore, Primary Mentor: Sherita H. Golden, M.D., M.H.S.

2009-2012 Internship and Residency, Department of Medicine, Yale University School of
Medicine, New Haven

2006-2008 Clinical Research Fellowship, National Heart, Lung and Blood Institute, Bethesda,
Primary Mentor: Michael N. Sack, M.D., Ph.D.

2003-2009 Doctor of Medicine, Boston University School of Medicine, Boston

1999-2003 Bachelor of Science, Biology, Morehouse College, Atlanta, Phi Beta Kappa, *magna
cum laude*

PROFESSIONAL EXPERIENCE

2016-present Assistant Professor of Medicine, Division of Endocrinology, Diabetes and Metabolism,
The Ohio State University Wexner Medical Center

2012-2013 Founder and Director of the Yale Primary Care Center Weight Management and
Wellness Clinic, Department of Internal Medicine, Yale University School of Medicine,
New Haven

2012-2013 Instructor of Medicine, Division of General Internal Medicine, Department of Internal
Medicine, Yale University School of Medicine, New Haven

PUBLICATIONS

Original Research

1. Ines Pagel-Langenickel, Jianjun Bao, **Joshua J. Joseph**, Daniel R. Schwartz, Benjamin S. Mantell, Xiuli Xu, Nalini Raghavachari, Michael N. Sack. PGC-1 α integrates insulin signaling, mitochondrial

regulation and bioenergetic function in skeletal muscle. *Journal of Biological Chemistry*, 2008;283(33):22464-22472. PMID: PMC2504883

2. Jianjun Bao, Zhongping Lu, **Joseph J. Joseph**, Darin Carabenciov, Christopher C. Dimond, Liyan Pang, Leigh Samsel, J. Philip McCoy Jr, Jaime Leclerc, PhuongMai Nguyen, David Gius, Michael N. Sack. Characterization of the murine SIRT3 mitochondrial localization sequence and comparison of mitochondrial enrichment and deacetylase activity of long and short SIRT3 isoforms. *Journal of Cellular Biochemistry*, 2010;110(1):238-247. PMID: PMC2858784
3. **Joshua J. Joseph**, Xu Wang, Elias Spanakis, Teresa Seeman, Gary Wand, Belinda Needham, Sherita Hill Golden. Diurnal Salivary Cortisol, Glycemia and Insulin Resistance: The Multi-Ethnic Study of Atherosclerosis. *Psychoneuroendocrinology*, 2015;62:327-335. PMID: PMC4637243
4. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Rita R. Kalyani, Hsin-Chieh Yeh, PhD, Alain G. Bertoni, Valery S. Effoe MD, Ramon Casanova, Mario Sims, Adolfo Correa, Wen-Chi Wu, Gary S. Wand and Sherita H. Golden. Aldosterone, Renin and Diabetes Mellitus in African Americans: The Jackson Heart Study. *Journal Clin Endocrinology Metabolism*, 2016;101(4):1770–1778. PMID: PMC4880170
5. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Sherita H. Golden, Haiying Chen, Nancy Swords Jenny, Mercedes R. Carnethon, David Jacobs Jr., Gregory L. Burke, Dhananjay Vaidya, Pamela Ouyang and Alain G. Bertoni. Physical Activity, Sedentary Behaviors and the Incidence of Type 2 Diabetes Mellitus: The Multi-Ethnic Study of Atherosclerosis. *BMJ Open Diabetes Research & Care*, 2016; Jun 23;4(1):e000185. PMID: PMC4932325
6. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Mercedes R. Carnethon, Alain G. Bertoni, Christina M. Shay, Haitham M. Ahmed, Roger S. Blumenthal, Mary Cushman, and Sherita H. Golden. The Association of Ideal Cardiovascular Health with Incident Type 2 Diabetes Mellitus: The Multi-Ethnic Study of Atherosclerosis. *Diabetologia*, 2016 Sep;59(9):1893-1903. PMID: PMC4970884
7. **Joshua J. Joseph**, Xu Wang, Ana V. Diez Roux, Brisa N. Sanchez, Teresa E. Seeman, Belinda L. Needham, Sherita H. Golden. Antecedent longitudinal changes in body mass index are associated with diurnal cortisol curve features: The multi-ethnic study of atherosclerosis. *Metabolism*, 2017;68:95–107. PMID: PMC5312946
8. Valery S. Effoe, Lynne E. Wagenknecht, Justin B. Echouffo Tcheugui, Haiying Chen, **Joshua J. Joseph**, Rita R. Kalyani, Ronny A. Bell, Wen-Chi Wu, Ramon Casanova, Alain G. Bertoni. Sex Differences in the Association Between Insulin Resistance and Incident Coronary Heart Disease and Stroke Among Blacks Without Diabetes Mellitus: The Jackson Heart Study. *Journal American Heart Association*, 2017;6(2). PMID: PMC5523745
9. Valery Effoe, Mercedes Carnethon, Justin Echouffo-Tcheugui, Haiying Chen, **Joshua J. Joseph**, Arnita Norwood, and Alain G. Bertoni. The American Heart Association Ideal Cardiovascular Health and Incident Type 2 Diabetes Mellitus Among Blacks: The Jackson Heart Study. *Journal American Heart Association*, 2017;6(6):e005008. PMID: PMC5669153
10. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Sameer Talegawkar, Valery S. Effoe, Victoria Okhomina, Mercedes R. Carnethon, Willa A. Hsueh, Sherita H. Golden. Modifiable Lifestyle Risk Factors and Incident Diabetes in African Americans. *American Journal of Preventive Medicine*, 2017 Aug 14. pii: S0749-3797(17)30342-2. PMID: PMC5704929
11. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Rita R. Kalyani, Hsin-Chieh Yeh, Alain G. Bertoni, Valery S. Effoe, Ramon Casanova, Mario Sims, Wen-Chi Wu, Gary S. Wand and Sherita H. Golden.

Aldosterone, Renin, Cardiovascular Events and All-Cause Mortality in African Americans: The Jackson Heart Study. *JACC: Heart Failure*, 2017 Sep;5(9):642-651. PMID: PMC5705009

12. Robin Ortiz, **Joshua J. Joseph**, Richard S. Lee, Gary S. Wand, and Sherita H. Golden. Type 2 Diabetes and Cardiometabolic Risk May Be Associated with Increase in DNA Methylation of FKBP5. *Clinical Epigenetics*, 2018, 2018 Jun 19;10:82. PMID: PMC6010037
13. **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Valery S. Effoe, Willa A. Hsueh, Matthew A. Allison and Sherita H. Golden. Renin-Angiotensin-Aldosterone System, Glucose Metabolism and Incident Type 2 Diabetes Mellitus: MESA. *Journal of the American Heart Association*, 2018;7:e009890. PMID: PMC6201432
14. Justin B. Echouffo-Tcheugui, Songzhu Zhao, Guy Brock, Roland A. Matsouaka, David Kline and **Joshua J. Joseph**. Visit-to-Visit Glycemic Variability and Risks of Cardiovascular Events and All-Cause Mortality: The ALLHAT Study. *Diabetes Care*, 2019 Jan 18. pii: dc181430. PMID: 30659073
15. David Bradley, Alecia Blaszcak, Zheng Yin, Joey Liu, **Joshua J. Joseph**, Valerie Wright, Kajol Anandani, Martha Yearsley Bradley Needleman, Sabrena Noria, David Renton, Stephen T.C. Wong and Willa A. Hsueh. Clusterin Impairs Hepatic Insulin Sensitivity and Adipocyte Clusterin Associates with Cardiometabolic Risk. *Diabetes Care*, 2019 Jan 18. pii: dc180870. PMID: 30659075
16. Ingrid K. Richards Adams, Wilson Figueroa, Irene Hatsu, James B. Odei, Mercedes Sotos-Prieto, Suzanne Leson, Jared Huling and **Joshua J. Joseph**. An Examination of Demographic and Psychosocial Factors, Barriers to Healthy Eating, and Diet Quality Among African American Adults. *Nutrients*, 2019 Feb; 11(3):519. PMID: 30823409
17. **Joshua J. Joseph**, Aleena Bennett, Justin B. Echouffo Tcheugui, Valery S Effoe, James B. Odei, Bertha Hidalgo, Akilah Dulin, Monika M. Safford, Doyle M. Cummings, Mary Cushman and April P. Carson. Ideal cardiovascular health, glycaemic status and incident type 2 diabetes mellitus: the REasons for Geographic and Racial Differences in Stroke (REGARDS) study. *Diabetologia*, 2019 Mar;62(3):426–437. PMID: 30643923
18. Robin Ortiz, Bjoern Kluwe, James Odei, Justin B. Echouffo Tcheugui, Mario Sims, Rita R. Kalyani, Alain G. Bertoni, Sherita H. Golden and **Joshua J. Joseph**. The Association of Morning Serum Cortisol with Glucose Metabolism and Diabetes: The Jackson Heart Study. *Psychoneuroendocrinology*, 2019 May;103:25-32. PMID: 30623794

Case Reports

1. Michael Tatusov, **Joshua J. Joseph**, Brian M. Cuneo. A case report of malignant obesity hypoventilation syndrome: A weighty problem in our ICUs. *Respiratory Medicine Case Reports*, 2017; Volume 20:38-41. PMID: PMC5126148

Review Articles

1. **Joshua J. Joseph** and Sherita H. Golden. Type 2 diabetes and cardiovascular disease: what next? *Current Opinion in Endocrinology, Diabetes and Obesity*, 2014;21(2):109-120. PMID: PMC5704916
2. **Joshua J. Joseph** and Thomas W. Donner. Long-term insulin glargine therapy in type 2 diabetes mellitus: a focus on cardiovascular outcomes. *Vascular Health and Risk Management*, 2015;11:107-116. PMID: PMC4315664
3. **Joshua J. Joseph** and Sherita H. Golden. Cortisol Dysregulation - The Bidirectional Link Between Stress, Depression and Type 2 Diabetes Mellitus. *Annals of the New York Academy of Sciences*, 2016 Oct 17. PMID: PMC5334212

Book Chapters, Monographs

1. Quinn Capers IV, **Joshua Joseph** and Debabrata Mukherjee. "Chapter 10: Approach to and Management of Renovascular Disease." *Manual of Vascular Diseases*, 2012, Edited by Sanjay Rajagopalan. Philadelphia, PA: Lippincott Williams & Wilkins 2012.
2. **Joshua J. Joseph**, Sherita H. Golden. Algorithms for Screening and Management of Cardiovascular Risk Factors in Type 2 Diabetes. The Johns Hopkins Diabetes Guide POC-IT Center (Johns Hopkins Point of Care Information Technology Center), Baltimore, MD. October 31, 2014.
3. **Joshua J. Joseph**, Shivam Champaneri, Rita R. Kalyani. Dawn Phenomenon. The Johns Hopkins Diabetes Guide POC-IT Center (Johns Hopkins Point of Care Information Technology Center), Baltimore, MD. August 25, 2015.
4. **Joshua J. Joseph**. Dyslipidemia Management. The Johns Hopkins Diabetes Guide POC-IT Center (Johns Hopkins Point of Care Information Technology Center), Baltimore, MD. August 29, 2015.
5. **Joshua J. Joseph**, Jeanne Clark. Obesity Management. The Johns Hopkins Diabetes Guide POC-IT Center (Johns Hopkins Point of Care Information Technology Center), Baltimore, MD. October 6, 2015.
6. **Joshua J. Joseph**, Simeon Margolis. Lipids. The Johns Hopkins Diabetes Guide POC-IT Center (Johns Hopkins Point of Care Information Technology Center), Baltimore, MD. October 6, 2015.
7. **Joshua J. Joseph**, Sherita H. Golden. Diabetes in Native Populations and Underserved Communities in the United States. In Dagogo-Jack S, editor. *Diabetes Mellitus in Developing Countries and Underserved Communities*, Cham, Switzerland: Springer International Publishing; 2017; p. 251–284.

FUNDING

Current

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|-----------|--|
| 2018-2023 | The Role of the Renin-Angiotensin-Aldosterone System, ARMC5, and Nephilysin in Glucose Metabolism among African Americans
K23 DK117041
National Institute of Diabetes, Digestive, and Kidney Disease
\$909,780
Role: Principal Investigator; 9 calendar months |
| 2018-2020 | Cooking Matters for Diabetes
Diabetes Care and Education Dietetic Practice Group Karen Goldstein Memorial Grant for Diabetes Medical Nutrition Therapy
\$20,000
Role: Co-Principal Investigator; 0.2 calendar months |
| 2018-2019 | Mindfulness-Based Cognitive Therapy for Comorbid Depression and Type 2 Diabetes: Development of a Joint Treatment and Research Program
The Ohio State University College of Medicine Communication and Collaboration Committee and the Small Grants Award
\$15,000
Role: Co-Principal Investigator; 0.2 calendar months |
| 2016-2019 | The Ohio State University Wexner Medical Center Startup Funding (salary and research support)
Role: Principal Investigator |

Previous

- 2017-2018 Leadership Development through Wellness-Integrated Informal Mentorship
The Ohio State University Fisher Leadership Initiative - Inaugural Leadership
Research Grant
\$10,000
Role: Co-Principal Investigator, 0.2 calendar months
- 2014-2016 Clinical Research and Epidemiology in Diabetes and Endocrinology Training
Grant, National Institute of Diabetes, Digestive, and Kidney Disease
T32 DK062707
- 2006-2008 NIH Clinical Research Training Program
(Pfizer-National Institutes of Health Foundation) Bethesda, MD
- 2000-2002 NIH Minority Biomedical Research Support Program
Morehouse School of Medicine, Atlanta, GA

CERTIFICATION

Medical, Other State/Government Licensure

- 2016-2018 Ohio State Medical License (#35.129258)
2012-2013 Connecticut State Medical License (#50981)

Boards, Other Specialty Certification

- 2015 Diplomat, Endocrinology, Diabetes and Metabolism, American Board of Internal
Medicine (#332279)
2013 Diplomat of the American Board of Internal Medicine (#332279)

CLINICAL ACTIVITIES

Clinical Focus

Endocrinology with specific focus on Type 2 Diabetes and Cardiovascular Disease.

Clinical (Service) Responsibilities

- 2018-present Diabetes clinic, one-half day per week and 4 weeks of inpatient service
2016-2018 Diabetes clinic, one day per week and 6 weeks of inpatient service
2013-2016 Endocrinology Continuity Clinic, one-half clinic day per week
2013-2014 Clinical Consulting Endocrinology Fellow, Fellow on the inpatient service at Johns
Hopkins East Baltimore Campus and Bayview Campus with call responsibilities. Managed
5-10 new consults per day and saw patients in the morning clinics
2012-2013 Yale Department of Medicine Faculty, Supervised medical students in a once per week
evening clinic
2012-2013 Yale Department of Medicine Faculty, Supervised internal medicine interns and
residents on the clinical wards (six weeks/academic year)
2012-2013 Yale Department of Medicine Primary Care Center, six internal medicine primary care
and weight management clinic sessions per week

Clinical Productivity

- 2012-2013 Yale Department of Medicine Primary Care Center, six internal medicine primary care
and weight management clinic sessions per week with 8-12 patients per session

Clinical Program Building/Leadership

- 2016-present Chairperson, OSU Division of Endocrinology, Diabetes and Metabolism, Research and Quality Improvement Registry
- 2012-2013 Founder and Director of the Yale Primary Care Center Weight Management and Wellness Clinic, Department of Internal Medicine, Yale University School of Medicine, New Haven
- 2010-2011 Member, Internal Medicine ACGME Restructuring Committee, Yale New-Haven Hospital/Yale University School of Medicine, New Haven
- 2005-2006 Boston University School of Medicine Class of 2007 Representative, Associate Provost of Diversity Search Committee, Boston University School of Medicine, Boston

EDUCATIONAL ACTIVITIES

Classroom Instruction

- 2013-2015 Lecturer, Medical Students, Interns and Residents, Endocrinology Elective-Morning Lecture Series, 12-16 one-hour lectures/year on topics in Endocrinology

Clinical Instruction

- 2016-present Clinical Teaching: Precepting Medical Student, Resident and Fellow trainees in weekly clinic (~20-30 trainees per year)
- 2015 Presenter, Internal Medicine Interns and Residents, Adrenal Disorders in Internal Medicine, Johns Hopkins Bayview Noon Conference

RESEARCH FOCUS

My research examines risk factors for the development of type 2 diabetes and cardiovascular disease in diverse populations. Our group examines classical risk factors for diabetes, obesity and cardiovascular disease including physical activity, dietary intake, smoking, cholesterol, blood pressure and adiposity and potential racial/ethnic differences. We also examine the role of novel risk factors including adrenal hormones and the hypothalamic-pituitary-adrenal axis, specifically aldosterone and cortisol, in the development of diabetes, obesity and cardiovascular disease. We perform analyses in longitudinal observational cohorts including the Multi-Ethnic Study of Atherosclerosis (MESA), Jackson Heart Study, Coronary Artery Risk Development in Young Adults Study (CARDIA) and REasons for Geographic and Racial Differences in Stroke (REGARDS). The hypotheses generated using epidemiological approaches are used to design and execute clinical studies from the individual to the population level to examine potential targets, methods and programs for prevention and improved treatment of diabetes, obesity and cardiovascular disease.

Specifically, my NIH funded research at The Ohio State University Wexner Medical Center focuses on population level and biological determinants of type 2 diabetes and cardiovascular disease. I have 3 specific research foci as described below.

1) The role of classical risk factors in the development and treatment of type 2 diabetes and cardiovascular disease including physical activity, dietary intake, smoking, cholesterol, blood pressure, and body weight in racial/ethnically diverse populations.

Type 2 diabetes is more prevalent among African Americans (AA) compared to non-Hispanic whites (NHW). Recent trends indicate that diabetes incidence has plateaued among NHWs, but continues to rise among AAs. The association of modifiable diabetes risk factors such as total cholesterol, blood pressure, dietary intake, tobacco use, physical activity, sedentary activity and body mass index (BMI)

with incident diabetes is well-characterized in non-Hispanic whites, but has been under studied in racial/ethnic minorities. In the Multi-Ethnic Study of Atherosclerosis among whites, blacks, Hispanic Americans and Chinese Americans, we showed that American Heart Association ideal cardiovascular health (ICH) components including total cholesterol (<200 mg/dl), blood pressure (<120/<80 mmHg), healthy dietary intake, not smoking, 150 minutes per week of physical activity and BMI < 25 kg/m² are associated with lower risk of diabetes. In fact, over 11 years, participants with ≥ 4 ICH components vs 0–1 components had a 75% lower diabetes risk. For African-Americans, there was a 66% lower risk among participants with ≥ 4 ICH components vs 0–1 components. Second, we've investigated the role of physical activity and sedentary behavior in the risk of developing diabetes. Higher physical activity and lower leisure sedentary behaviors were associated with lower risk of developing diabetes in a multiethnic analysis; but was driven mostly by the white group; thus, racial/ethnic minorities may require more physical activity or other approaches to lower diabetes risk. Third, in the Jackson Heart Study, we investigated the association of modifiable lifestyle risk factors (exercise, diet, smoking, television watching and sleep disordered breathing burden) with the development of diabetes among AAs. A combination of modifiable lifestyle factors was associated with a lower risk of diabetes among AAs, but the finding was driven by individuals with normal waist circumference, BMI < 30 kg/m² and/or normal fasting glucose, suggesting that modifiable lifestyle risk factors may have a greater effect in keeping individuals healthy vs. reversing risk in those with prediabetes or metabolic syndrome. A follow-up study evaluating the association of ideal cardiovascular health with incident diabetes among African Americans in the Jackson Heart Study yielded similar findings to the Multi-Ethnic Study of Atherosclerosis. Thus, improving modifiable lifestyle risk factors may provide one pathway to promote health equity among racial/ethnic minorities, but further analyses to understand the most beneficial components are paramount. In these studies, body mass index and blood pressure were the 2 components that were most associated with diabetes risk among racial/ethnic minorities. In addition, our work suggests that identifying non-classical novel risk factors that may lower the burden of diabetes in racial/ethnic communities is of utmost importance.

2) The role of adrenal hormones including cortisol and aldosterone in the development and treatment of type 2 diabetes and cardiovascular disease, a program that spans from clinical trials to population health research.

Our research has shown that cortisol, a stress hormone produced from the adrenal gland, is associated with higher Hemoglobin A1c in those with diabetes. We've also shown that increasing body mass index over time changes the body's natural cortisol patterns, suggesting that greater adiposity may lead to a blunted diurnal cortisol profile and the cortisol may then lead to disease as a blunted diurnal cortisol profile has been related to the development of diabetes and cardiovascular disease. Currently, we have furthered this research by studying the epigenetics of cortisol signaling and cardiometabolic risk. We demonstrated that two sites of DNA methylation (DNAm) of the FKBP5, a co-chaperone of the glucocorticoid (cortisol) receptor, gene are associated with risk factors in type 2 diabetes including higher hemoglobin A1C, low-density lipoprotein cholesterol, waist circumference, and body-mass index. Additionally, we showed an association of FKBP5 DNAm with cardiovascular procedures and physical activity in individuals with diabetes. Taken together, these findings suggest hypermethylation of FKBP5 may be associated with cardiometabolic disease risk in individuals with type 2 diabetes.

We have also linked the Renin-Angiotensin-Aldosterone System to Glucose Metabolism, Diabetes and Cardiovascular Disease: While the role of the renin-angiotensin-aldosterone system (RAAS) in hypertension is established; its role in the pathogenesis of diabetes and cardiovascular disease among African Americans had not been established. Studies in cells and rodents suggested a role for the RAAS in the development of both hypertension and diabetes, providing a common mechanism contributing to

both conditions in African Americans. Using data from the Jackson Heart Study and Multi-Ethnic Study of Atherosclerosis, we have shown that higher levels of aldosterone are associated with higher diabetes risk over 10 years among African Americans and Chinese Americans. These findings suggest that the RAAS, particularly aldosterone, may be a potential therapeutic and/or preventive target for type 2 diabetes with potential racial/ethnic differences. Additionally, we've shown that aldosterone is associated with higher risk of cardiovascular disease (heart disease, stroke and heart failure), as well as, all-cause mortality among African Americans. Thus, approaches targeting the RAAS are of paramount importance, and we currently have a NIH funded study investigating the blood glucose lower effect of medicines commonly used in blood pressure that lower aldosterone among African Americans with prediabetes.

3) Preventing Chronic Disease through community based participatory research.

Examining approaches to narrow the gap in health outcomes among African Americans is vital to achieving health equity and eliminating health disparities. Thus, our research group in collaboration with Dr. Darrell Gray II and Dr. Timiya Nolan have completed the data analysis of a systematic review regarding the current studies targeting improving components of ideal cardiovascular health in African Americans. This review assesses the effectiveness of community based participatory research as a method to promote ideal cardiovascular health among African Americans and sets the stage for our approach to community based participatory research to improve ideal cardiovascular health in African Americans that has been submitted for funding with our community partner, The African American Male Wellness Initiative. In this grant, we call into focus the need for a multilevel intervention and programing focusing on engaging black men in embracing wellness to improve ideal cardiovascular health.

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

- 2016-present Developing and implementing a Division of Endocrinology, Diabetes and Metabolism Registry Database for quality improvement projects and clinical research to improve the quality of care at The Ohio State University Wexner Medical Center
- 2013-2014 Chairperson; Johns Hopkins Endocrinology Fellowship Quality Improvement Project: Creating a Diabetes Profile in EPIC, the diabetes profile is currently in use among providers serving patients with diabetes at Johns Hopkins Medical Institute

ORGANIZATIONAL ACTIVITIES

Journal peer review activities

- 2018-2021 *Ethnicity & Health*, Associate Editor
- 2017-present *Journal of Diabetes and its Complications*
- 2016-present *Diabetes Research and Clinical Practice*
- 2016-present *BMJ Open*
- 2016-present *Endocrine*
- 2016-present *Journal of Clinical Endocrinology & Metabolism*
- 2016-present *Journal of the Renin-Angiotensin-Aldosterone System*
- 2015-present *Psychoneuroendocrinology*

Other Peer Review Activities

- 2018-present Endocrine Society: Summer Research Fellowship (SRF) Program
- 2017-present Review Endocrine Society Annual Meeting Abstracts
- 2017-present Review American Diabetes Association – Scientific Sessions Abstracts
- 2015-present Review manuscript proposals, abstracts and manuscripts for The Jackson Heart Study

Local Committees

- 2018-present Franklin County Public Health – Franklin County Hypertension Network, Member
- 2018-present Franklin County Public Health – Diabetes Working Group, Member
- 2018-present Health Works Franklin County Steering Committee, Member
- 2018 The Ohio State University Wexner Medical Center Health Equity Committee
- 2018 The Ohio State University College of Medicine, Diabetes and Metabolism Area of Concentration – Community Engagement, Member
- 2018 The Ohio State University College of Medicine, Diabetes and Metabolism Area of Concentration - Clinical Data Analytics & Public Health Workgroup, Co-Chair
- 2018 The Ohio State University Emerging Community Engagement Award Review Committee
- 2017-present The Ohio State University Clinical Center for Translational Science Community Engagement Faculty Advisory Board

National Committees, Review Groups/Study Sections

- 2018-2020 American Heart Association/American Stroke Association Diabetes Committee of the Council on Lifestyle and Cardiometabolic Health
- 2018-2019 American Heart Association/American Stroke Association Science Advisory & Coordinating Committee
- 2017-2022 Endocrine Society: Clinical Affairs Core Committee
- 2017-2019 American Heart Association EPI Early Career Committee of the Council on Epidemiology and Prevention
- 2017-2019 American Heart Association/American Stroke Association 2020 Goal Metrics Committee
- 2016-present The Ohio State University Diabetes and Metabolism Research Center
- 2016-present REGARDS: Diabetes and Obesity Working Group
- 2015-2016 Endocrine Society: Research Affairs Core Committee
- 2015-present Jackson Heart Study: Nutrition and Physical Activity Working Group
- 2013-present Jackson Heart Study: Obesity and Diabetes Working Group
- 2013-2017 The Multi-Ethnic Study of Atherosclerosis: Stress Working Group

Professional Societies

- 2015-present American Diabetes Association, Member
- 2014-present NIDDK Network of Minority Health Research Investigators, Member
- 2014-present The Obesity Society, Member
- 2014-present American Heart Association, Fellow
- 2013-present Endocrine Society, Member
- 2013-2014 American College of Physicians
- 2003-2009 Student National Medical Association, Member, Boston University Chapter President (2003-2005), Northeast Region VII Board Member (2003-2005)
- 2001-2003 Student National Medical Association, Pre-Medical Member

Conference Organizer

- 2004-2005 Chairperson, Student National Medical Association Region VII, 2004-2005 Regional Conference: “Balancing the Scale: Closing the Gap between Physicians and Patients”

AWARDS, HONORS

Assistant Professor

- 2019 27th Annual Columbus Business First | 40 Under 40 Award
- 2019 Fellow of the American Heart Association conferred by the Council on Epidemiology and Prevention

- 2019 Columbus Education Association 2019 Dr. Martin Luther King, Jr. Humanitarian Award - *The award marks distinguished service in the community in the areas of education, social justice and human and civil rights*
- 2018 The National African American Male Wellness Initiative Health Hero Award 2018 - *Recognizing contributions to advancing health and wellness in the community for the plight of African American Men.*
- 2017 National Institute of Diabetes and Digestive and Kidney Disease, Clinical Science Research Award, Network of Minority Health Research Investigators 15th Annual Workshop
- 2017 American Diabetes Association 4th Annual Focus on Fellows Awardee and Travel Grant
- 2017 Endocrine Society 2017 Travel Award

Fellowship

- 2016 Endocrine Society Early Career Forum Travel Forum Award
- 2016 American Diabetes Association 3rd Annual Focus on Fellows Awardee and Travel Grant
- 2016 The American Heart Association's Council on Epidemiology and Prevention: Epidemiology Minority Travel Grant
- 2015-2016 Endocrine Society, Future Leaders Advancing Research in Endocrinology Intern
- 2014-2016 Appointment to Clinical Research and Epidemiology in Diabetes and Endocrinology Training Grant, National Institute of Diabetes, Digestive, and Kidney Diseases, Johns Hopkins University School of Medicine
- 2014-2016 Christopher D. Saudek M.D. Fellowship in Diabetes Research, Division of Endocrinology, Diabetes and Metabolism, Johns Hopkins University School of Medicine, Baltimore

Residency

- 2011-2012 Johnson & Johnson Global Health Scholar, Yale University School of Medicine, New Haven, Program provided funding to travel to Kampala, Uganda and provide care in the Endocrinology Ward
- 2011 Samuel D. Kushlan M.D. Award, Yale University School of Medicine/Yale-New Haven Hospital, New Haven, Honoring the Junior Admitting Resident who has contributed most to patient care at Yale-New Haven Hospital

Medical School

- 2006-2008 Medical Research Scholars Program (formerly Clinical Research Training Program) Fellow, National Institutes of Health, Bethesda
- 2003-2009 Boston University, Martin Luther King, Jr., Fellow, Boston University, Boston, Provided Scholarship for Medical School Tuition and Stipend

Undergraduate

- 2003 Phi Beta Kappa, Morehouse College, Atlanta
- 2002 Golden Key International Honour Society, Morehouse College, Atlanta
- 2002 Beta Kappa Chi, Morehouse College, Atlanta
- 2002 Alpha Epsilon Delta, Morehouse College, Atlanta
- 2001 Boston University Early Medical School Selection Program Recipient, Boston University School of Medicine, Boston
- 2000-2002 Minority Biomedical Research Support Fellow, Morehouse School of Medicine, Atlanta
- 1999-2003 Dean's List, Morehouse College, Atlanta
- 1998-1999 Dean's List, The Ohio State University (Post-secondary option for gifted high school students), Columbus

OTHER PROFESSIONAL ACCOMPLISHMENTS

Poster Presentations

- 2019 Grace Lee, Songzhu Zhao, David Kline, Guy Brock, James Odei, Veena Kesireddy, MD, Mario Sims, Valery Efoe, Wen-Chih Wu, Rita R. Kalyani, Gary S. Wand, Justin B. Echouffo Tcheugui, Sherita Hill Golden, and **Joshua J. Joseph**. Anthropometric, Imaging, and Biological Markers of Adiposity and Aldosterone among African Americans: The Jackson Heart Study. ENDO 2019. [Presented at the Presidential Poster Moderated Session]
- 2018 Veena Kesireddy, Yubo Tan, Bjorn Kluwe, David Kline, Guy Brock, James Odei, Valery S. Efoe, Justin B. Echouffo Tcheugui, Rita R. Kalyani, Mario Sims, Herman A. Taylor, Morgana Mongraw-Chaffin, Ehimare Akhabue and **Joshua J. Joseph**. Higher levels of Life's Simple 7 are Associated with Lower Aldosterone among African Americans in the Jackson Heart Study. The Ohio State University Wexner Medical Center Trainee Research Day; Department of Internal Medicine Clinician Scientist Trainee Research Day [Winner – Best Clinical Research Poster]
- 2018 Bjoern Kluwe, Robin Ortiz, James Odei, Justin B. Echouffo Tcheugui, Mario Sims, Rita R. Kalyani, Alain G. Bertoni, Sherita H. Golden and **Joshua J. Joseph**. Higher morning serum cortisol is associated with glycemic markers and prevalent diabetes among African Americans: The Jackson Heart Study. 2018 The Ohio State University Denman Undergraduate Research Forum, Columbus, OH; National Institute of Diabetes and Digestive and Kidney Disease, Network of Minority Health Research Investigators 16th Annual Workshop, Bethesda, MD
- 2018 Robin Ortiz, **Joshua J. Joseph**, Richard Lee, Gary S. Wand and Sherita Hill Golden. Type 2 Diabetes and Cardiometabolic Risk Are Associated with Increase in DNA Methylation of FKBP5. AAP/ASCI/APSA Annual Meeting, Chicago, IL; Johns Hopkins Department of Medicine Research Retreat, Baltimore, MD
- 2017 **Joshua J. Joseph**, Justin B. Echouffo Tcheugui, Valery S. Efoe, Willa A. Hsueh, Matthew A. Allison, and Sherita H. Golden. Aldosterone is Associated with Higher Glucose, Insulin Resistance and Incident Diabetes among Community Dwelling Adults: The Multi-Ethnic Study of Atherosclerosis. 2017 NIH Future Research Leaders Conference/NIH Research Festival, Bethesda, MD
- 2017 **Joshua J. Joseph**, Echouffo-Tcheugui JB, Talegawkar S, Efoe VS, Okhomina V, Carnethon MR, Hsueh WA, Golden SH. An Optimal Modifiable Lifestyle Risk Factor Score is Associated with Lower Risk of Type 2 Diabetes Mellitus in African Americans: The Jackson Heart Study. The American Heart Association Epi/Lifestyle Scientific Sessions, Portland, OR
- 2016 **Joshua J. Joseph**, Susan Langan, Haiying Chen, Michael C. Sachs, Kristin G. Hairston, Alain G. Bertoni, Willa A. Hsueh, Sherita H. Golden and Jane Harman. The Association of Serum Vitamin D with Incident Diabetes in the Jackson Heart Study. National Institute of Diabetes and Digestive and Kidney Disease, Network of Minority Health Research Investigators Midwest Regional Workshop, Cleveland, OH
- 2016 Valery S. Efoe, Lynne E. Wagenknecht, Justin B. Echouffo-Tcheugui, Haiying Chen, **Joshua J. Joseph**, Rita R. Kalyani, Ronny A. Bell, Wen-Chih Wu, Ramon Casanova, Alain G. Bertoni. Insulin Resistance is Associated with Incident Coronary Heart Disease but not

- Stroke Among African Americans: The Jackson Heart Study. The American Heart Association Epi/Lifestyle Scientific Sessions, Phoenix, AZ
- 2016 Alain G. Bertoni, Haiying Chen, Valery S. Effoe, Adolfo Correa, Mercedes Carnethon, Rita R. Kalyani, Justin B. Echouffo-Tcheugui, **Joshua J. Joseph**, Sherita H. Golden, Glucometabolic State Transitions: The Jackson Heart Study. The American Heart Association Epi/Lifestyle Scientific Sessions, Phoenix, AZ
- 2015 **Joshua J. Joseph**, Clare J. Lee, Nowella Durkin, Nisa M. Maruthur, Janelle W. Coughlin, Thomas Magnuson, Michael Schweitzer, Kimberley Steele, Jeanne M. Clark. Expectation of Improvement in Quality of Life with Remission of Diabetes Predicts Improvement in Quality of Life with Weight Loss Interventions. The Obesity Society Annual Meeting. Los Angeles, CA
- 2015 Jane L. Harman, Haiying Chen, Michael C. Sachs, Kristin G. Hairston, Sherita H. Golden, **Joshua J. Joseph**, Alain G. Bertoni. Serum Vitamin D is Not Associated with Risk of Incident Diabetes in African Americans: The Jackson Heart Study. The American Heart Association Epi/Lifestyle Scientific Sessions. Baltimore, MD
- 2015 **Joshua J. Joseph**, MD, Steven Xu Wang, MS, Elias Spanakis, MD, Ana Diez Roux, MD, PhD, Teresa Seeman, PhD, Gary Wand, MD, Belinda Needham, PhD, MA, Sherita Hill Golden, MD, MHS. "Diurnal Salivary Cortisol is associated with Increased Glycemia and Insulin Resistance: The Multiethnic Study of Atherosclerosis". The American Heart Association Epi/Lifestyle Scientific Sessions, Baltimore, MD
- 2007 **Joshua J. Joseph**, Ines Pagel-Langenickel, Jianjun Bao, Xiuli Xu, Michael N. Sack. PPAR-gamma Agonist Pioglitazone Restores the Mitochondrial Biogenesis Regulatory Program and Augments Respiratory Function in Insulin Resistant C2C12 Myotubes.
1. National Heart, Lung and Blood Institute Fellows Retreat, Gettysburg, PA 2. Pfizer Pharmaceuticals Global Research and Development Facility Scientific Poster session, Groton, CT
- 2001 **Joshua J. Joseph**, Bernard H. Simelton, Denita Eatman, Mohamed A. Bayorh. The Role of Gender in the Actions of Enalapril in Dahl Salt-sensitive Rats. Annual Biomedical Research Conference for Minority Students, Orlando, FL. Awarded "Best poster in physiological sciences"

Oral Presentations

- 2019 Emily R. Martini, Turhan Carol, Carl M. Maresh, FACSM, **Joshua J. Joseph**, and David A. Delaine. Supporting Physical Health of Black Male Faculty Through a Wellness-integrated Professional Development Program: FIT Leaders. 2019 Annual Meeting, World Congress on Exercise is Medicine®, and World Congress on the Basic Science of Exercise, Circadian Rhythms and Sleep of the American College of Sports Medicine, Orlando, FL
- 2018 **Joshua J. Joseph**, Aleena Bennett, Justin B. Echouffo Tcheugui, Valery S. Effoe, James Odei, Bertha Hidalgo, Akilah Dulin, Monika M. Safford, Doyle M. Cummings, Mary Cushman and April P. Carson. Higher Levels of Ideal Cardiovascular Health Are Associated with Lower Risk of Incident Type 2 Diabetes Mellitus Among Individuals with Normal Fasting Glucose but Not Impaired Fasting Glucose: The Reasons for Geographic and Racial Differences in Stroke Study. The American Heart Association Epi/Lifestyle Scientific Sessions, New Orleans, LA

- 2018 Veena Kesireddy, Yubo Tan, David Kline, Guy Brock, Valery S. Effoe, James B. Odei, Justin B. Echouffo Tcheugui and **Joshua J. Joseph**. Higher levels of Ideal Cardiovascular Health Are Associated with Lower Aldosterone among African Americans in the Jackson Heart Study. Endocrine Society Annual Meeting, Chicago, IL
- 2017 **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Sameera Talegawkar, Valery S. Effoe, Victoria Okhomina, Mercedes R. Carnethon, Willa A. Hsueh, Sherita H. Golden. An Optimal Modifiable Lifestyle Risk Factor Score is Associated with Lower Risk of Type 2 Diabetes Mellitus in African Americans: The Jackson Heart Study. National Institute of Diabetes and Digestive and Kidney Disease, Network of Minority Health Research Investigators 15th Annual Workshop, Bethesda, MD
- 2017 **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Valery S. Effoe, Willa A. Hsueh, Matthew A. Allison, Sherita H. Golden. Aldosterone Is Associated with Higher Glucose, Insulin Resistance and Incident Diabetes Among Community Dwelling Adults: The Multi-Ethnic Study of Atherosclerosis. Endocrine Society Annual Meeting, Orlando, FL
- 2016 Valery S. Effoe, Mercedes R. Carnethon, Justin B. Echouffo-Tcheugui, Haiying Chen, **Joshua J. Joseph**, Arnita R. Norwood, Alain G. Bertoni. "The American Heart Association Ideal Cardiovascular Health and Incident Type 2 Diabetes Mellitus among African Americans: The Jackson Heart Study". The American Diabetes Association Scientific Sessions, New Orleans, LA
- 2016 **Joshua J. Joseph**, Justin B. Echouffo-Tcheugui, Mercedes R. Carnethon, Alain G. Bertoni, Christina M. Shay, Haitham M. Ahmed, Roger S. Blumenthal, Mary Cushman, Sherita H. Golden. "The Association of Ideal Cardiovascular Health with Incident Type 2 Diabetes Mellitus: The Multi-Ethnic Study of Atherosclerosis." Multi-Ethnic Study of Atherosclerosis Steering Committee Meeting, Bethesda, MD
- 2014 **Joshua J. Joseph**, Sherita H. Golden. "Diurnal Cortisol Profile as a Predictor of Weight Change over 6 years: The Multiethnic Study of Atherosclerosis Stress Study." Welch Center for Prevention, Epidemiology, and Clinical Research - Johns Hopkins University: Introduction to Clinical Research Presentation Series, Baltimore, MD
- 2008 **Joshua J. Joseph**, Jianjun Bao, Xiuli Xu, Michael N. Sack. "Sirt3 as a model of Acetylation - Deacetylation of mitochondrial proteins and the potential role in mitochondrial biology." National Heart Lung and Blood Institute: Mitochondrial Meeting, Bethesda, MD
- 2007 **Joshua J. Joseph**, Mark T. Gladwin, Michael N. Sack. "A Model of Transient Endothelial Dysfunction". NIH Clinical Research Training Program for Medical and Dental Students 2006-2007: Oral Scientific Presentations, Bethesda, MD

Local Invited Research Talks and Grand Rounds

- 2019 "The Role of Lifestyle Factors, Aldosterone and Cortisol in Type 2 Diabetes Mellitus" – The Ohio State University College of Public Health, Division of Epidemiology Seminar Series
- 2019 "Type 2 Diabetes in Asian Americans" – The Ohio State University Wexner Medical Center: Endocrine Update 2019, Fawcett Center, Columbus, OH

- 2018 “Prevention of Type 2 Diabetes Mellitus: The Role of Lifestyle Factors and Hormones” – The Ohio State University Building Blocks for Translational Science and Medicine in Diabetes, LEGOLAND® Discovery Center at Easton Town Center, Columbus, OH
- 2018 “Racial Disparities in Diabetes Care: Epidemiology, Prevention, Treatment & Outcomes:” – The Ohio State University African American and African Studies 4326: Race and Medicine – Guest Lecture, Columbus, OH
- 2018 “Creating Healthy Communities through Meaningful Partnerships: Insights & Opportunities from the National African American Male Wellness Initiative – OSU Partnership” – The Ohio State University Internal Medicine Grand Rounds, Columbus, OH
- 2018 “New Basal Insulins Beyond U100” – The Ohio State University Wexner Medical Center: Endocrine Update 2018, Fawcett Center, Columbus, OH
- 2018 “Diabetes Management in African Americans: Keys to Success from the Patient to the Population” – OSU Division of Endocrinology, Diabetes and Metabolism Grand Rounds, Columbus, OH
- 2018 “Life’s Simple 7: Saving Black Men’s Lives” – 2018 Community Engagement Conference – Partnering to Advance Health & Wellness, The Ohio Union at The Ohio State University, Columbus, OH
- 2017 “Modifiable Lifestyle Factors in Diabetes” – The Ohio State University Diabetes and Metabolism Research Update, The Athletic Club of Columbus, Columbus, OH
- 2017 “New and Future Rapid Acting Insulins” – The Ohio State University Wexner Medical Center: Endocrine Update 2017, Fawcett Center, Columbus, OH
- 2016 “The Adrenal Gland in Cardiometabolic Disease” – Johns Hopkins Division of Endocrinology, Diabetes and Metabolism, Grand Rounds, Baltimore, MD
- 2015 “The Role of Adrenal Hormones in Obesity and Diabetes” – The Ohio State University, Division of Endocrinology, Diabetes and Metabolism, Faculty Candidate Lecture, Columbus, OH

National and International Invited Research Talks and Grand Rounds

- 2019 “Improving the Narrative, Recruitment and Retention of Black Men in Medicine” – 2019 Black Male Summit, The University of Akron, Akron, OH
- 2019 “Optimizing the Transition from Fellowship to Faculty: Secrets from the Other Side” – Future Leaders Advancing Research in Endocrinology – Endocrine Society – The Hyatt Centric Fisherman’s Wharf, San Francisco, CA
- 2018 “#BlackMenInMedicine: A Movement Towards Diversifying the Physician Workforce” – The Ohio State 24th Annual National Conference on Diversity, Race & Learning, Columbus, OH
- 2018 “Life’s Simple 7: At the Intersection of Diabetes, Cardiovascular Disease and Cancer” – The Ohio State University 4th Annual Cancer Disparities Conference, Columbus, OH
- 2018 “Diabetes in Minority Populations: Does one size fit all?” – 19th Annual Diabetes Conference: Diabetes Management: When Conventional Wisdom Collides with Reality, University of Rochester Medical Center, Rochester, NY

- 2018 “Networking & Collaboration: Critical for Early Career Success” – Future Leaders Advancing Research in Endocrinology – Endocrine Society – The Westin, San Diego, CA
- 2017 “Prevention of Type 2 Diabetes Mellitus: The Role of Lifestyle Factors and Adrenal Hormones” – Delaware – CTR ACCEL Innovative Discoveries Seminar Series – Christiana Care Hospital – Value Institute, Newark, DE
- 2017 “Life’s Simple 7: Saving Black Men’s Lives” – The National African American Male Wellness Walk Initiative, Executive Board Meeting, The Westin Hotel, Columbus, OH
- 2017 “The Role of Modifiable Lifestyle Factors and the Renin-Angiotensin-Aldosterone System in Diabetes Among African Americans.” – The National Institutes of Health Future Research Leaders Conference, Bethesda, MD
- 2017 “The Role of the Renin-Angiotensin-Aldosterone System in Adiposity, Blood Pressure and Glucose Metabolism among African Americans.” – Robert Wood Johnson Harold Amos Medical Faculty Development Program, Chicago, IL
- 2017 “The Hunt to Prevent Type 2 Diabetes: The Role of Lifestyle Factors and Adrenal Hormones in Diabetes and Obesity” – Division of Preventive Medicine in Department of Family Medicine and Public Health, University of California San Diego School of Medicine, La Jolla, CA
- 2017 “Diabetes Prevention and Management” – Annual Community Health Day, OSU Wexner Medical Center CarePoint East, Columbus, OH

Community Engagement Invited Talks and Sessions

- 2019 “Building a Healthy Lifestyle: The American Heart Association” – Fifth-Third Bank African American Resource Group Black History Month Program, Columbus, OH
- 2018 “Preventing Diabetes through Partnering to Build Healthier Communities” – The Ohio State University Partners Achieving Community Transformation (PACT), Columbus, OH
- 2018 “Type 2 Diabetes: Asian Americans – Low Risk or High Risk?” – Asian American Community Services Conference on Minority Health, Worthington, OH
- 2018 “Diabetes Prevention and Management” – Annual Community Health Day, OSU Wexner Medical Center, CarePoint East, Columbus, OH
- 2018 Health Care Listening Session on “The Health in Ohio’s Third Congressional District” with U.S. Rep. Joyce Beatty – Franklin Park Conservatory, Columbus, OH
- 2018 “Preventing Diabetes through Partnering to Build Healthier Communities: Life’s Simple 7” – Franklin County Public Health – Whitehall Community Health Action Team Meeting, Whitehall, OH
- 2018 “Building a Healthy Lifestyle: The American Heart Association” – Columbus Metropolitan Housing Authority, Columbus, OH
- 2018 “Diabetes Prevention and Management” – Community Health Day, OSU Wexner Medical Center, Schottenstein Center, Columbus, OH

Policy Advocacy

- 2018 Endocrine Society Hill Day – Insulin Affordability and Diabetes Self-Management Training – met with legislative offices of Senator Rob Portman (R-OH), Senator Sherrod

Brown (D-OH), Representative Brad Wenstrup (R-OH) and Representative Joyce Beatty (D-OH-3)

2018 Endocrine Society Researcher Hill Day – Addressing need for increased NIH funding and the value of endocrine research, met with legislative offices of Senator Rob Portman (R-OH), Senator Sherrod Brown (D-OH) and Representative Joyce Beatty (D-OH-3)

Media Interviews

1. “The impact of Diabetes and Heart Disease on African Americans,” *1580 AM WVKO*, Faith and Family with Rev. Dr. Carolyn Pettigrew, 11 February 2019
2. “New Therapies for Type 2 Diabetes,” *WOSU TV*, OSU MedNet21 – On-line CME Webcasts for Physicians, 4 February 2019
<http://u.osu.edu/mednet21/2019/02/04/learn-about-new-therapies-for-type-2-diabetes/>
3. “Diabetics need to be worried about heart disease,” *Columbus Dispatch*, 3 February 2019. Print Audience: 100,104; Online audience: 2.1 million
<https://www.dispatch.com/news/20190203/diabetics-need-to-be-worried-about-heart-disease>
4. “Life’s Simple 7 and Diabetes,” *Sirius XM Doctor Radio*, Interventional Cardiology with Dr. Fred Feit, 23 January 2019
5. “Ideal cardiovascular health, glycaemic status and incident type 2 diabetes mellitus: the REasons for Geographic and Racial Differences in Stroke (REGARDS) study,” In *Diabetologia*, 15 January 2019. Multiple media interviews for TV, online news publications, social media, and traditional print media. Total audience: 225,728,030
<https://link.springer.com/article/10.1007%2Fs00125-018-4792-y>
6. “Can Being Stressed Cause Type 2 Diabetes?” *Everyday Health*, 16 October 2018. Online audience: 10.8 million
<https://www.everydayhealth.com/wellness/united-states-of-stress/can-stress-trigger-type-2-diabetes/>
7. “Ohio State Study Connects High Blood Pressure to Type 2 Diabetes,” *WOSU/NPR*, 5 September 2018
<http://radio.wosu.org/post/ohio-state-study-connects-high-blood-pressure-type-2-diabetes>
8. “Renin-Angiotensin-Aldosterone System, Glucose Metabolism and Incident Type 2 Diabetes Mellitus: MESA.” In *Journal of the American Heart Association*, 4 September 2018. Multiple media interviews for TV, online news publications, social media, and traditional print media. Total audience: 235,673,849
<https://www.ahajournals.org/doi/10.1161/JAHA.118.009890>
9. “Ohio State medical school’s diversity efforts in admissions paying off,” *Columbus Dispatch*, 11 March 2018.
<https://www.dispatch.com/news/20180311/ohio-state-medical-schools-diversity-efforts-in-admissions-paying-off>

BIOGRAPHICAL NARRATIVE

Dr. Joshua J. Joseph is an Assistant Professor of Medicine in the Division of Endocrinology, Diabetes and Metabolism at The Ohio State University Wexner Medical Center. He is a proud alumnus of Columbus Alternative High School ('99), Morehouse College (B.S. in Biology, '03) and Boston University School of Medicine (M.D., '09), during which time he spent 2 years at the National Institutes of Health in the Medical Research Scholars Program. He completed his internal medicine residency and was on the General Internal Medicine faculty at Yale University School of Medicine. Previously, he was the Christopher D. Saudek M.D. Fellow in Diabetes Research at the Johns Hopkins University School of Medicine. He is a board-certified, endocrinologist and physician scientist with expertise in population health and clinical research in diabetes and cardiovascular disease.



Dr. Joseph's diabetes patient care focuses on a team-based patient-centered approach to living with type 2 diabetes, focusing on lifestyle behaviors and medical therapeutics. This team-based approach is tailored to provide the patient the necessary tools to successfully manage type 2 diabetes and avoid the long-term complications of diabetes including neuropathy, nephropathy, retinopathy and cardiovascular disease, which is the leading cause of premature mortality among those with type 2 diabetes. In collaboration with The Ohio State University Wexner Medical Center electronic health record optimization team and Dr. Neha Verma, he has been developing new templates and tools using the EPIC electronic health record and mychart to promote increased efficiency and decreased patient burden when using the electronic health record. This project is also paving the way for future quality improvement research to critically analyze the strengths and weaknesses of current approaches to diabetes care and allow the design and integration of new approaches. He is also a co-investigator on two novel clinical trials evaluating the role of "Cooking Matters for Diabetes" with Jenny Shrodes, RD and "Mindfulness Based Cognitive Therapy for Patients with Type 2 Diabetes and Depression" with Sophie Lazarus, Ph.D. both designed to provide new therapies for the successful treatment of type 2 diabetes. He serves on a number of national committees relevant to his expertise in clinical care including The Endocrine Society Clinical Affairs Core Committee and The American Heart Association (AHA) National Science Advisory and Coordinating Committee.

Dr. Joseph's research group focuses broadly on the link between diabetes and cardiovascular disease. Specifically, his NIH funded research at The Ohio State University Wexner Medical Center focuses on population level and biological determinants of type 2 diabetes and cardiovascular disease. Dr. Joseph serves on a number of national committees related to his research expertise including, leading the research efforts of The National African American Male Wellness Initiative in partnership with Drs. Darrell M Gray II, Timiya S. Nolan and James B. Odei. He is also a member of American Heart Association (AHA) National Science Advisory and Coordinating Committee, AHA 2020 Guideline Metrics Committee and AHA Epidemiology Early Career Committee. He has 3 specific research foci as described below.

1) The role of classical risk factors in the development and treatment of type 2 diabetes and cardiovascular disease including physical activity, dietary intake, smoking, cholesterol, blood pressure, and body weight in racial/ethnically diverse populations.

Type 2 diabetes is more prevalent among African Americans (AA) compared to non-Hispanic whites (NHW). Recent trends indicate that diabetes incidence has plateaued among NHWs, but continues to rise among AAs. The association of modifiable diabetes risk factors such as total cholesterol, blood pressure, dietary intake, tobacco use, physical activity, sedentary activity and body mass index (BMI) with incident diabetes is well-characterized in non-Hispanic whites, but has been under studied in racial/ethnic minorities. In the Multi-Ethnic Study of Atherosclerosis among whites, blacks, Hispanic Americans and Chinese Americans, we showed that American Heart Association ideal cardiovascular health (ICH) components including total cholesterol (<200 mg/dl), blood pressure (<120/<80 mmHg), healthy dietary intake, not smoking, 150 minutes per week of physical activity and BMI < 25 kg/m² are associated with lower risk of diabetes. In fact, over 11 years, participants with ≥ 4 ICH components vs 0–1 components had a 75% lower diabetes risk. For African-Americans, there was a 66% lower risk among participants with ≥ 4 ICH components vs 0–1 components. Second, we've investigated the role of physical activity and sedentary behavior in the risk of developing diabetes. Higher physical activity and lower leisure sedentary behaviors were associated with lower risk of developing diabetes in a multiethnic analysis; but was driven mostly by the white group; thus, racial/ethnic minorities may require more physical activity or other approaches to lower diabetes risk. Third, in the Jackson Heart Study, we investigated the association of modifiable lifestyle risk factors (exercise, diet, smoking, television watching and sleep disordered breathing burden) with the development of diabetes among AAs. A combination of modifiable lifestyle factors was associated with a lower risk of diabetes among AAs, but the finding was driven by individuals with normal waist circumference, BMI < 30 kg/m² and/or normal fasting glucose, suggesting that modifiable lifestyle risk factors may have a greater effect in keeping individuals healthy vs. reversing risk in those with prediabetes or metabolic syndrome. A follow-up study evaluating the association of ideal cardiovascular health with incident diabetes among African Americans in the Jackson Heart Study yielded similar findings to the Multi-Ethnic Study of Atherosclerosis. Thus, improving modifiable lifestyle risk factors may provide one pathway to promote health equity among racial/ethnic minorities, but further analyses to understand the most beneficial components are paramount. In these studies, body mass index and blood pressure were the 2 components that were most associated with diabetes risk among racial/ethnic minorities. In addition, our work suggests that identifying non-classical novel risk factors that may lower the burden of diabetes in racial/ethnic communities is of utmost importance.

2) The role of adrenal hormones including cortisol and aldosterone in the development and treatment of type 2 diabetes and cardiovascular disease, a program that spans from clinical trials to population health research.

Our research has shown that cortisol, a stress hormone produced from the adrenal gland, is associated with higher Hemoglobin A1c in those with diabetes. We've also shown that increasing body mass index over time changes the body's natural cortisol patterns, suggesting that greater adiposity may lead to a blunted diurnal cortisol profile and the cortisol may then lead to disease as a blunted diurnal cortisol profile has been related to the development of diabetes and cardiovascular disease. Currently, we have furthered this research by studying the epigenetics of cortisol signaling and cardiometabolic risk. We demonstrated that two sites of DNA methylation (DNAm) of the FKBP5, a co-chaperone of the glucocorticoid (cortisol) receptor, gene are associated with risk factors in type 2 diabetes including higher hemoglobin A1C, low-density lipoprotein cholesterol, waist circumference, and body-mass index. Additionally, we showed an association of FKBP5 DNAm with cardiovascular procedures and physical activity in individuals with diabetes. Taken together, these findings suggest hypermethylation of FKBP5 may be associated with cardiometabolic disease risk in individuals with type 2 diabetes.

We have also linked the Renin-Angiotensin-Aldosterone System to Glucose Metabolism, Diabetes and Cardiovascular Disease: While the role of the renin-angiotensin-aldosterone system (RAAS) in hypertension is established; its role in the pathogenesis of diabetes and cardiovascular disease among African Americans had not been established. Studies in cells and rodents suggested a role for the RAAS in the development of both hypertension and diabetes, providing a common mechanism contributing to both conditions in African Americans. Using data from the Jackson Heart Study and Multi-Ethnic Study of Atherosclerosis, we have shown that higher levels of aldosterone are associated with higher diabetes risk over 10 years among African Americans and Chinese Americans. These findings suggest that the RAAS, particularly aldosterone, may be a potential therapeutic and/or preventive target for type 2 diabetes with potential racial/ethnic differences. Additionally, we've shown that aldosterone is associated with higher risk of cardiovascular disease (heart disease, stroke and heart failure), as well as, all-cause mortality among African Americans. Thus, approaches targeting the RAAS are of paramount importance, and we currently have a NIH funded study investigating the blood glucose lowering effect of medicines commonly used in blood pressure that lower aldosterone among African Americans with prediabetes.

3) Preventing Chronic Disease through community based participatory research.

Examining approaches to narrow the gap in health outcomes among African Americans is vital to achieving health equity and eliminating health disparities. Thus, our research group in collaboration with Dr. Darrell Gray II and Dr. Timiya Nolan have completed the data analysis of a systematic review regarding the current studies targeting improving components of ideal cardiovascular health in African Americans. This review assesses the effectiveness of community based participatory research as a method to promote ideal cardiovascular health among African Americans and sets the stage for our approach to community based participatory research to improve ideal cardiovascular health in African Americans that has been submitted for funding with our community partner, The African American Male Wellness Initiative. In this grant, we call into focus the need for a multilevel intervention and programming focusing on engaging black men in embracing wellness to improve ideal cardiovascular health.

Dr. Joseph believes in the value and purpose of community engagement giving talks and leading discussions throughout the country highlighting the importance of healthy lifestyle behaviors including American Heart Association's Ideal Cardiovascular Health or *Life's Simple 7*, in the prevention and treatment of type 2 diabetes and cardiovascular disease. *Life's Simple 7* are seven risk factors for chronic disease that people can improve through lifestyle changes: smoking status, physical activity, weight, diet, blood glucose, cholesterol, and blood pressure. He is currently working with a number of organizations and community stakeholders to take the next steps in promoting programs and policies to lower risk of chronic diseases and promote health equity through improving *Life's Simple 7* in Ohio. Locally, he is a member of the Diabetes and Hypertension Working Groups for Franklin County Public Health, The OSU Wexner Medical Center Health Equity Steering Committee, The OSU Center for Clinical and Translational Sciences Community Engagement Faculty Advisory Board, and Secretary of the Ohio Commission on Minority Health.