BIOGRAPHICAL SKETCH

NAME: Allison W. Kurian, M.D., M.Sc.

eRA COMMONS USER NAME: akurian

POSITION TITLE: Assistant Professor of Medicine and of Health Research and Policy

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Stanford University, Stanford, CA	B.A.	06/1995	Human Biology, Honors
Harvard Medical School, Boston, MA	M.D.	06/1999	Medicine
Massachusetts General Hospital, Boston, MA	Residency	06/2002	Internal Medicine
Harvard School of Public Health, Boston, MA		08/2000	Clinical Effectiveness
Stanford University School of Medicine, Stanford, CA	Fellowship	06/2005	Medical Oncology
Stanford University School of Medicine, Stanford, CA	M.Sc	12/2006	Epidemiology

A. Personal Statement

My professional goal is to improve breast and gynecologic cancer outcomes, through clinically-oriented research on the early detection, prevention, and treatment of these cancers. I have significant experience of leading epidemiologic studies of risk factors for breast and ovarian cancer (Kurian et al, J Clin Oncol 2011, PMID 22042950), clinical trials of novel approaches to the treatment and prevention of breast cancer, and decision analyses of strategies to optimize breast and gynecologic cancer outcomes (Kurian et al, J Clin Oncol 2012 PMID 22231042). My research has been supported by National Institutes of Health, foundation, and institutional grants and I have published widely in peer-reviewed journals. As the Director of the Stanford Women's Cancer Genetics Clinic, I maintain an active practice caring for women diagnosed with, and at high risk for developing, breast and ovarian cancer. I serve on the National Comprehensive Cancer Network Panels for Genetic Risk of Breast/Ovarian Cancer and for Breast Cancer Risk Reduction, developing evidence-based practice guidelines. I lead the Stanford Oncoshare project, a breast cancer outcomes research initiative that uses integrated data from electronic medical records and the population-based Surveillance, Epidemiology and End Results Registry (Kurian et al, Cancer 2014, PMID 24101577), and I collaborate with the University of Michigan Cancer Surveillance and Outcomes Research Team as lead medical oncology investigator on the National Cancer Institute-funded Program Project Grant, "The Challenge of Individualizing Treatments for Patients with Breast Cancer". Together with epidemiologist colleagues from the Cancer Prevention Institute of California, I recently led a population-based study of nearly 190,000 California breast cancer patients that compared mortality rates after three common surgical procedures for the treatment of early breast cancer and demonstrated a lack of mortality benefit associated with bilateral mastectomy (Kurian et al, JAMA 2014, PMID 25182099).

B. Positions and Honors

Positions and Employment

1999-2002 Intern and Resident in Internal Medicine, Massachusetts General Hospital
2002-05 Post-Doctoral Fellow, Division of Oncology, Stanford University School of Medicine
2006-07 Instructor in Medicine, Division of Oncology, Stanford University School of Medicine
2007- Associate Director, Stanford Program for Clinical Cancer Genetics
2007- Member, Stanford University Cancer Institute, Cancer Epidemiology Program
2008- Assistant Professor of Medicine and Health Research and Policy, Stanford University School of Medicine; re-appointed February 1, 2013
2012- Director, Stanford Women's Cancer Genetics Clinic

2013- Member, Stanford University Cancer Institute, Cancer Prevention and Control Program

Professional Certification

2002 Certified, Internal Medicine, American Board of Internal Medicine
2005 Certified, Medical Oncology, American Board of Internal Medicine

Other Professional Activities and Experience

2004- Manuscript Reviewer, Annals of Internal Medicine, Breast Cancer Research, Breast Cancer Research and Treatment, Cancer, Cancer Epidemiology Biomarkers and Prevention, Cancer Investigation, Cancer Prevention Research, Cancer Research, Carcinogenesis, Clinical Cancer Research, European Journal of Cancer, International Journal of Cancer, JAMA, Journal of Clinical Oncology, Nature Biotechnology, PLoS Genetics, Value in Health
2008-11 Career Development Subcommittee, American Society of Clinical Oncology (ASCO)
2008 Data Relevance Working Group, Surveillance Epidemiology and End Results (SEER) Registry
2009- Member, Guidelines Panel on Breast/Ovarian Genetics, National Comprehensive Cancer Network (NCCN)
2011- Board of Directors, American Cancer Society, Santa Clara County
2011- Scientific Advisory Board, FORCE Advocacy Group for Hereditary Breast and Ovarian Cancer
2011-14 Scientific Program Committee, Cancer Prevention and Epidemiology, ASCO
2011- Scientific Program Committee, Epidemiology Section, American Association for Cancer Research
2012-15 Scientific Program Committee, ASCO Quality Care Symposium
2012- Advisory Committee, California Health Care Foundation
2013- Member, California Breast Density Information Group
2013- Advisor on Cancer Genetics, San Francisco Bay Area Biotechnology Education Consortium
2013- Member, Guidelines Panel on Breast Cancer Risk Reduction, NCCN
2013-14 Track Leader, Cancer Prevention and Epidemiology, ASCO Scientific Program Committee
2014- Oncology Consultant, National Cancer Institute (NCI)-funded Cancer Intervention and Surveillance Modeling Network (CISNET) Breast Working Group
2014- Lead Medical Oncology Investigator, Cancer Surveillance and Outcomes Research Team (CanSORT), University of Michigan School of Medicine
2014- Co-Investigator, Prospective Registry of MultiPlex Genetic Testing (PROMPT) Study
2015- External Advisory Board, Princess Margaret Hospital Cancer Genomics Program, Toronto, Canada

Honors and Awards

1995 Phi Beta Kappa, Stanford University
2003 Award for best research abstract, Division of Oncology, Stanford University
2004 American Society of Clinical Oncology Merit Award for Research Abstract
2005 American Society of Clinical Oncology Young Investigator Award
2005 Cancer Research and Prevention Foundation Post-Doctoral Fellowship Award
2005 California Breast Cancer Research Program Post-Doctoral Fellowship Award
2006 NIH Building Interdisciplinary Research Careers in Women's Health K12 Award
2007 Cornelius L. Hopper Research Impact Award, California Breast Cancer Research Program
2008 Robert Wood Johnson Foundation Physician Faculty Scholars Award
2008 Jan Weimer Faculty Chair for Breast Oncology, Stanford Cancer Institute
2010 California Breast Cancer Research Program Translational Research Award
2011 New Clinical Investigator Award, Stanford Cancer Institute
2012 One of the 12 best publications funded by the NCI's Epidemiology and Genomics Program (Kurian et al, J Clin Oncol 2011:29:4505-9, PMID 22042950)
2013 Suzanne Pride Bryan Breast Cancer Research Award, Stanford Cancer Institute
2014 Stanford Oncology Division Teaching Award

C. Contributions to Science

1. Understanding hereditary breast and ovarian cancer risk across diverse populations. My work has contributed significantly to the understanding of inherited breast cancer risk, with a special focus on diverse

populations. In early work, I studied the performance of models that predict carriage of *BRCA1* and *BRCA2* (*BRCA1/2*) gene mutations across different racial/ethnic groups; these articles demonstrated substantial differences in the performance of clinical risk prediction tools across racial / ethnic groups, with significant implications for patient care. Using the SEER registry and together with colleagues from the Cancer Prevention Institute of California (CPIC), I led a study to quantify the risks of second primary breast cancers among breast cancer survivors, and found that survivors of a first hormone receptor-negative breast cancer have a ten-fold increased risk of developing a second such cancer, compared to the general population. I built on this work with a study of lifetime breast cancer risks according to molecular subtype and race/ethnicity among 40,936 participants of the California Cancer Registry, a component of the SEER registry. In collaboration with the multi-national Breast Cancer Family Registry (BCFR), I led a study that estimated breast cancer risks among women testing negative for an identified familial mutation in *BRCA1*/2. We discovered that there is no significant increase in breast cancer risk among non-carriers of a familial *BRCA1/2* mutation; this publication was highlighted by an editorial and news release, and it was selected as one of the 12 best publications funded by the National Cancer Institute's Epidemiology and Genomics Research Program in 2011.

1. **Kurian AW**, Gong GD, Chun NM, et al. Performance of *BRCA1/2* mutation prediction models in Asian Americans. Journal of Clinical Oncology 2008; 26:4752-8. PMID: 18779604

2. **Kurian AW**, McClure LA, John EM, et al. Second primary breast cancer occurrence according to hormone receptor status. Journal of the National Cancer Institute 2009; 101:1058-65. PMID: 19590058

3. **Kurian AW,** Fish K, Shema SJ, Clarke CA. Lifetime risks of specific breast cancer subtypes among women in four racial/ethnic groups. Breast Cancer Research 2010; 12:R99. PMID: 21092082

4. **Kurian AW**, Gong GD, John EM, et al. Breast cancer risk for non-carriers of family-specific *BRCA1* and *BRCA2* mutations: findings from the Breast Cancer Family Registry. Journal of Clinical Oncology 2011: 29:4505-9. PMID: 22042950

2. Informing decisions about breast and ovarian cancer risk reduction. I have conducted many studies that aim to inform and facilitate the difficult choices that women face about managing their cancer risks. In collaboration with the NCI-funded Cancer Intervention and Surveillance Modeling Network (CISNET), I have led decision analyses of cancer risk reduction options for high-risk women. We first estimated the cost-effectiveness of screening breast magnetic resonance imaging (MRI) for *BRCA1/*2 mutation carriers, a publication that was cited by the practice guidelines of the American Cancer Society, and honored by the 2007 Research Impact Award of the California Breast Cancer Research Program. I built on this work to compare the survival of *BRCA1/2* mutation carriers after various available options for cancer risk reduction, using a computer simulation model. Notably, we discovered that intensive breast screening incorporating MRI offers comparable survival probability to that of prophylactic mastectomy, an invasive procedure that many patients wish to avoid. This work resulted in a high-impact publication that was cited in statements by the American and Canadian Colleges of Surgeons. We later provided the simulation model online for clinical use as a decision support tool, and it is publicly available to patients and doctors at http://brcatool.stanford.edu. Most recently, I collaborated with surveillance researchers to lead a SEER-based study of the surgical choices and outcomes of nearly 190,000 Californian breast cancer patients. Despite a dramatic rise in the use of double mastectomy over time, no patient sub-group gained any survival benefit from this highly invasive procedure. This definitive observational study of surgical outcomes answered an urgent clinical question – do women gain any better survival if they remove both breasts – which patients and physicians consider unethical to address with a randomized clinical trial. My work has thus provided essential information to guide clinical decision-making.

1. Plevritis SK, **Kurian AW**, Sigal BM, et al. Cost-effectiveness of screening breast magnetic resonance imaging for women with *BRCA* mutations. JAMA 2006; 295:2374-84. PMID: 16720823

2. **Kurian AW**, Sigal BM, Plevritis SK. A survival analysis of cancer risk reduction strategies for *BRCA1/2* mutation carriers. Journal of Clinical Oncology 2010; 28:222-31. PMID: 19996031

3. **Kurian AW**, Munoz DM, Rust P, et al. Online tool to guide decisions for *BRCA1/2* mutation carriers. Journal of Clinical Oncology 2012; 30:497-506. PMID: 22231042

4. **Kurian AW**, Lichtensztajn DY, Keegan THM, et al. Use of and mortality after bilateral mastectomy compared with other surgical treatments for breast cancer in California, 1998-2011. JAMA 2014; 31:902-914. PMID: 25182099

3. Clinical translation of emerging genomic technologies. I have contributed broadly to the translation of genomic technologies for cancer diagnosis and treatment. My early work in this area included the first cost-effectiveness analysis of a molecularly targeted therapy for early breast cancer, trastuzumab. I later led two innovative data linkage projects that integrated SEER and electronic medical records, and studied the use of genetic testing and targeted therapy across healthcare settings. I have recently focused on translating next-generation sequencing panels of multiple cancer-risk associated genes into clinical practice. In 2014, I led the first clinical study of next-generation sequencing for breast cancer risk assessment. We found that a substantial proportion of high-risk women carry mutations in genes other than *BRCA1/2*, a discovery that has enabled early detection of at least one cancer to date, and offers evidence of benefit from this new genetic technology. This innovative study was published as a rapid communication due to its clinical relevance, was chosen by ASCO as one of the best original articles of 2014, and informed the 2015 NCCN practice guidelines.

1. **Kurian AW**, Newton Thompson R, Gaw AF, et al. A cost-effectiveness analysis of adjuvant trastuzumab regimens in early HER-2/neu-positive breast cancer. Journal of Clinical Oncology 2007; 25:634-41. PMID: 17308268

2. **Kurian AW**, Lichtensztajn D, Keegan THM, et al. Patterns and predictors of breast cancer chemotherapy use in Kaiser Permanente Northern California, 2004-2007. Breast Cancer Research and Treatment 2013; 137:247-60. PMID: 23139057

3. **Kurian AW**, Mitani MS, Desai M, et al. Breast cancer treatment across healthcare systems: linking electronic medical records and state registry data to enable outcomes research. Cancer 2014; 120:103-11. PMID: 24101577

4. **Kurian AW**, Hare EE, Mills MA, et al. Clinical evaluation of a multiple-gene sequencing panel for hereditary cancer risk assessment. Journal of Clinical Oncology 2014; 32:2001-2009. PMID: 24733792

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/1smniWZl_dAM/bibliography/47806390/public/?sort=date&direction=ascending

D. Research Support

Ongoing Research Support

California Breast Cancer Research Program 9/1/13-2/28/16
Title: Getting a Jump on Cancer
Goal: To discover new genomic strategies for risk-stratifying pre-malignant breast lesions
Role: Co-Investigator (Principal Investigator: Robert West, Stanford University)

Breast Cancer Research Foundation 10/1/13-9/30/15
Title: The Oncoshare Project: An Informatics Approach to Therapeutic Discovery in Breast Cancer
Goal: To discover new correlations between specific treatments and breast cancer outcomes
Role: Co-Principal Investigator (Co-Principal Investigator: George Sledge, Stanford University)

National Institutes of Health R01 EB009055-01 12/1/13-11/28/16
Title: High-Resolution Whole-Breast MRI at 3.0T
Goal: To develop higher resolution MRI, to better classify lesions, reduce biopsies, and find cancer earlier
Role: Co-Investigator (Principal Investigator: Brian Hargreaves, Stanford University)

National Institutes of Health Program Project Grant, P01 CA163233 5/1/14-6/30/17
Title: The Challenge of Individualizing Treatments for Breast Cancer

Goal: The goal of this program is to improve population health by helping clinicians and their patients address the challenges of individualizing treatment of breast cancer for patients with favorable prognosis.
Role: Subcontract Principal Investigator (Principal Investigator: Steven Katz, University of Michigan)

Stanford University Translational Medicine Research Program Grant 9/1/14-8/31/15
Title: The Oncoshare Triple-Negative Breast Cancer Project
Goal: To determine clinical and molecular variables linked to survival in a poor prognosis breast cancer cohort using a real-world, population-based approach
Role: Co-Principal Investigator (Co-Principal Investigator: Alice Fan, Stanford University)

Selected Completed Research Support *(from a total of 18 completed awards)*
Robert Wood Johnson Foundation Physician Faculty Scholars Award 7/1/08-6/30/11
Title: Breast Cancer Risk Reduction Strategies: Optimizing Their Use by Physicians and Patients
Goal: Use simulation modeling to estimate the benefit from different breast cancer risk reduction strategies.
Role: Principal Investigator

National Institutes of Health R01 EB009055-01 12/1/09-11/28/13
Title: High-Resolution Whole-Breast MRI at 3.0T
Goal: Develop much higher resolution MRI, to better classify lesions, reduce biopsies, and find cancer earlier.
Role: Co-Investigator (Principal Investigator: Brian Hargreaves, Stanford University)

California Breast Cancer Research Program Translational Research Award 16OB-0149 7/1/10-6/30/13
Title: Measuring Real-World Breast Cancer Care
Goal: Translate electronic health records into a breast cancer outcomes research tool
Role: Principal Investigator

California Breast Cancer Research Program Award 1/1/11-12/02/13
Title: California Breast Cancer Survivorship Consortium
Goal: Create a consortium of California epidemiologic studies to study disparities in breast cancer survival.
Role: Co-Investigator (Principal Investigator: Anna Wu, University of Southern California)

Stanford Cancer Institute (Developmental Research Award in Population Science) 9/1/11-8/31/12
Title: Can Emerging Genetic Tests Improve Breast Cancer Risk Assessment?
Goal: To evaluate the contribution of emerging genetic tests to clinical breast cancer risk assessment.
Role: Principal Investigator

Stanford Cancer Institute (Developmental Research Award in Population Science) 9/1/12-8/31/13
Title: Serum Melatonin and Breast Cancer Risk: A Pilot Study
Goal: To conduct a pilot study of the association between melatonin and breast cancer risk
Role: Co-Investigator (Principal Investigator: Ann Hsing, Cancer Prevention Institute of California)

Stanford Cancer Institute (Developmental Research Award in Population Science) 9/1/12-2/28/14
Title: Emerging Diagnostic Technology in Breast Cancer Care: A Comparative Effectiveness Study
Goal: To evaluate the comparative effectiveness of emerging diagnostic technologies for breast cancer
Role: Principal Investigator

Stanford University (Hospital and Clinics Innovation Fund Award) 11/1/12-10/31/13
Title: Colorectal Cancer Screening Tailored to Risk
Goal: To develop a comprehensive colon cancer risk assessment profile to target colonoscopy screening
Role: Co-Investigator (Principal Investigator: Uri Ladabaum, Stanford University)

Stanford Cancer Institute (Developmental Research Award in Population Science) 11/30/12-12/1/13
Title: Influence of Social Networking Sites in Breast Cancer Survivors from Diverse Communities
Goal: To study the influence of social networking websites on breast cancer survivors
Role: Co-Investigator (Principal Investigator: Gem Le, Cancer Prevention Institute of California)