**BIOGRAPHICAL SKETCH**

NAME: Michele R. Forman

eRA COMMONS USER NAME: MFORMAN

POSITION TITLE: David Bruton Centennial Professor, Department of Nutritional Sciences

EDUCATION/TRAINING

| INSTITUTION AND LOCATION | DEGREE | Completion Date MM/YYYY | FIELD OF STUDY |
|---|---|---|---|
| Rutgers University, New Brunswick, NJ | BA | 06/1972 | Medical Anthropology, Music |
| University of North Carolina, School of Public Health, Chapel Hill, NC | MSPH | 06/1974 | Epidemiology |
| University of North Carolina, School of Public Health, Chapel Hill, NC | MA | 06/1975 | Nutritional Anthropology |
| University of North Carolina, School of Public Health, Chapel Hill, NC | PHD | 06/1977 | Nutritional Epidemiology |

**A. Personal Statement**

I am a Nutritional Epidemiologist who examines maternal and child health with a special focus on pregnancy outcomes in disadvantaged populations. I conduct field epidemiology research across the globe with an emphasis on early life exposures and risk for chronic disease or growth and biomarkers of health across the life course. As my research foci have shifted from low birth-weight to chronic disease, the stillpoint has remained fixed; I *examine the developmental origins of disease.* The epidemiologic, anthropometric, and dietary strands of my research career meet at the nexus of early life exposures and cancer, energy balance and cancer. I am heavily funded by NIH through contracts and grants with earlier funds arising as an Intramural Scientist first at NICHD and then NCI. My research addresses the PRC's primary research areas: 1) Family Demography and Intergenerational Relationships, 2) Population Health, and 3) Reproductive Health.

In the next five years, I expect my major contributions to research to emanate from a focus on intergenerational health through the merger of my previous research developing the Mother's Cohort to the Nurses' Health Studies and the Growing Up Today Study (GUTS) of the offspring of the Nurses in the Nurses' Health Cohort Study II. A tri-generational approach enables the examination of pathways to health through multiple generations coupled with already collected biospecimen and reported data across the three generations. My ties to Harvard University remain strong after three decades. This approach is fundamental to understanding the role of epigenetics in health and development across the life course. The next area of focus addresses simple questions about maternal and child health as for example contrasting the ability of the maternal (synciotrophoblast) versus the fetal (chorion) side of the placenta to provide information about the role of epigenetics in the offspring. Another genre focuses on interventions that can ameliorate life-long risk of cardiovascular disease in offspring of preeclampsia, a comorbidity in pregnancy diagnosed by hypertension and proteinuria in the mother mid-gestation. My team and I have reported adverse health effects on the offspring as early as 10 years of age including higher blood pressure than age-sex matched peers. Now we turn to the arsenal of dietary interventions like DASH to modify blood pressure during adolescence in a camp setting where food intake is monitored during the summer time to examine whether sodium restriction and/or low fat/high fiber diets can ameliorate adversity in later life.

I have been collaborating with other members (faculty and students) of the PRC in grant proposal submissions and as the PI to the National Children's Study in Harris and Travis Counties,that included demographers like Mark Hayward and others on the project. Finally the PRC infrastructure has been extraordinarily important for my career by supporting grant submissions, managing contracts and grants. I could not envision success in my career without the Administrative, Development, and Science & Technical Cores at the PRC. The Collaboratorium environment fosters collaborations, accelerates discovery and does so in an inviting and exemplary fashion. It is unique!

## B. Positions and Honors

**Positions and Employment**

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|---|---|
| 1973-1976 | Teaching Assistant/Lecturer/GRA, UNC, Chapel Hill, NC |
| 1976-1983 | Epidemiologist, Intramural Division of Epidemiology, National Institute of Child Health and Human Development, Bethesda, MD |
| 1977-1978 | Instructor, George Washington University Schools of Medicine & Public Health, Washington, DC |
| 1982-1984 | Associate Professor, Emory University, Atlanta, GA |
| 1983-1986 | Epidemiologist CDC, Center for Health Promotion and Education, Atlanta, GA |
| 1986-1990 | Associate Professor, Departments of International Health and Epidemiology, Division of Nutrition, Institute for International Programs School of Hygiene & Public Health, Johns Hopkins University, Baltimore, MD |
| 1988-2099 | Principal Investigator/Senior Nutrition Epidemiologist, Intramural Program, Center for Cancer Research (CCR), National Cancer Institute, Bethesda, MD |
| 2006-2011 | Research Professor, Department of Nutrition, Texas Womans University, Denton, TX |
| 2006-2011 | Professor, Department of Epidemiology, Division of OVP, Cancer Prevention and Population Sciences, The University of Texas M.D. Anderson Cancer Center, Houston, TX |
| 2007-present | Professor, Department of Pediatrics –Research, Baylor College of Medicine, Houston, TX |
| 2007-present | Professor, Department of Epidemiology, UT School of Public Health, Austin, TX |
| 2011-present | Bruton Endowed Professor, Department of Nutritional Sciences, University of Texas at Austin |
| 2014-2016 | Director, School of Human Ecology, College of Natural Sciences, University of Texas at Austin |

**Honors, Other Experience and Professional Memberships**

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|---|---|
| 1969 | Donald Born Scholar, Division of General Education, Boston University |
| 1972-1975 | NIEHS Environmental Epidemiology Trainee, School of Public Health, UNC |
| 1975-1997 | Public Health Service Trainee, Institute for Social Science Research, UNC |
| 19977 | Outstanding Young Woman of America |
| 1984 | Infant Feeding Task Force Award, Public Health Service, CDC |
| 1985 | The Behavioral Risk Factor Survey Award, Public Health Service, CDCP |
| 2005 | Merit Award for exemplary leadership in advancing NCI's commitment to understanding the science of energy balance and cancer, National Institutes of Health |
| 2008 | Nominated Leading Mentor in Cancer Prevention, Div. Cancer Prevention & Population Sci. MDACC |
| 2010-2013 | Chair, Interagency Breast Cancer and the Environment Coordinating Committee, NIH |
| 2013-2015 | At-large Member, the Board of the Gillings School of Public Health, UNC at Chapel Hill |
| 2013 | Order of the Plank for National Children's Study, National Institutes of Health Public Health Service |
| 2014 | Award of Excellence for the Interagency Breast Cancer and the Environment Report, Office of the Director, National Institute of Health |
| 2015 | Top Ten Reviewer, *American Journal of Preventative Medicine* |
| 2016-present | Member, Board of Directors, American College of Epidemiology |
| 2016 | Member, European Academy of Sciences |

## C. Contributions to Science

**Life Course Epidemiology:** I began my three decades-long research career examining maternal and child health with a special focus on pregnancy outcomes in disadvantaged populations and have a 38-year career in field epidemiology research across the globe with an emphasis on early life exposures and risk for chronic disease as well as the role of nutrition in growth and health across the life course. As my research foci have shifted from low birth-weight to chronic disease, the stillpoint has remained fixed; I examine the developmental origins of disease. I have examined the relationships between age at menarche and age at menopause (Forman MR 2013 PMID: 24600293). I am a PI on the Mother's Cohort Study to the Nurses' Health Studies that linked maternal data on early life exposures of the nurse daughter to the ongoing health data, we have reported that infant feeding is not related to obesity at age 18 (e.g. Michels KB PMID: 17452993). My current work focuses on why preeclampsia (PE), diagnosed as hypertension and proteinuria in pregnancy, is associated with reduced risk for hormonal cancers in the mother and offspring of the index pregnancy. This pregnancy condition is characterized by high androgen and low estrogen and IGF1 levels. We have reported

that daughters of the PE pregnancy delay breast development past 12 years compared to daughters of normotensive pregnancies (Ogland B PMID: 20930013); that PE mothers who breast feed have lower insulin and glucose levels but higher risk for hypertension and cardiovascular disease 11 years postpartum as do their offspring (Alsnes IV 2014 PMID: 24949538; Ogland B PMID: 19609220); and that milk intake in childhood is directly related to IGF1 levels at 10 years (Schraw JS 2014 PMID: PMID: 25511106).

1. Schraw JM, Ogland B, Dong YQ, Nilsen ST, **Forman MR**. In utero preeclampsia exposure, milk intake and pubertal development. Reprod Toxicol. 2014, Dec 12. pii: S0890-6238(14)00315-3. doi: 10.1016/j.reprotox.2014.12.004. [Epub ahead of print] PMID: 25511106
2. Stuebe AM, **Forman MR** and Michels KB. Maternal-recalled gestational weight gain, pre-pregnancy body mass index and obesity in the daughter. Int J Obes (Lond) 33(7):743-52, 7/2009. PMID: 2710391.
3. Perkins E, Murphy SK, Murtha A, Schildkraut J, Jirtle R, Demark-Wahnefried W, **Forman MR**, Kutszberg J, Overcash F, Huang Z, Hoyo C. IGF2/H19 methylation at birth, breastfeeding, and risk of obesity at age one year. J Pediatr 2012 Feb 17 epub ahead PMID 22341586
4. Alsnes IV, Jansky I, **Forman MR,** Vatten LJ and Okland I. The association between preeclampsia and cardiovascular risk factors 11 years after the delivery: population-based study of mothers and offspring. Am J Obstet Gynecol 2014 Jun 17: PMID: 24949538.

**Birth Size and Pediatric ALL:** In 2002, I presented at the ALL Workshop on Gene-Environment Interactions, National Cancer Institute, the duality of birth size i.e. one could be large in absolute size at birth or large for size relative to all births in the same gestation week and the direct relationship to ALL. I have collaborated with peers and consistently demonstrated that ALL patients who were born high birthweight or the large for gestational age are at higher risk (from 40-80%) for ALL than those born normal birthweight or appropriate for gestational age. This paradigm shift to two rather than one risk group (previously only identified as those weighing > 4KG) has led to an understanding that *rapid* fetal growth during early third trimester i.e. those in the 90$^{th}$ percentile of the birthweight distribution of newborns delivered at 28-36 weeks can be a risk factor for ALL. Others have replicated the birth size and ALL findings. I have completed an international pooling project on this topic (Roman E et al 2013: PMID:23266048).

1. Schüz J and **Forman MR**. Birthweight for Gestational Age and Risk of Childhood Cancer. Cancer Causes Control 18(6):655-63, 8/2007. PMID: 17503007.
2. Roman E, Lightfoot T, Smith A, **Forman MR,** Linet MS, Robison L, Simpson J, Kaatch P, Grell K, Frederickson K, Schuz J. Childhood acute lymphoblastic leukemia and birthweight: insights from a pooled analysis of case-control data from Germany, the United Kingdom and the United States. Eur J Cancer 2013, 49(6):1437-47. PMID 23266048.
3. Sprehe MR, Barahmani N, Cao Y, Wang T, **Forman MR**, Bondy M, Okcu MF. Comparison of birth weight corrected for gestational age and birth weight alone in prediction of development of childhood leukemia and central nervous system tumors. Pediatr Blood Cancer 54(2):242-9, 2/2010. PMCID: 2795053.

**Infant Feeding:** Throughout my career I have examined the determinants of and role of infant feeding in child health. I have reported at the international and national level on the factors influencing the choice and duration of infant feeding in multiple cultures; reviewed the literature (Forman MR 1984 PMID: 6384918); developed workshops to address the methodologic challenges in reporting infant feeding data retrospectively as well as conducted research to compare the effect of retrospective v. prospective data collection of infant feeding practices and demonstrated that maternal recall of infant feeding is accurate (Launer LJ 1992 PMID: 24154567). My tools for investigation of infant feeding have been applied in many different settings after demonstrating the validity and reliability of them. I have served on task forces on infant feeding at the DHHS level, taught courses on the topic, and have been recognized with awards at the NIH. The other aspect of infant feeding relates to my work on the effect of infant feeding practices on child and maternal health for which I have published over 45 papers. (See for e.g. in pubmed: Forman MR 1995 PMID: 7872212; Pettitt DJ 1997 PMID: 9250183; and linked it to ALL - below Schraw JS 2014 PMID: 24154567).

1. Zhu Y, Hernandez L, Dong YQ, Hirschfeld S, Mueller P, **Forman MR**. Predictive models for characterizing disparities in exclusive breastfeeding performance in a multi-ethnic population in the US. Matern Child Health J Feb 2016;20(2):398-407.PMID: 26515468
2. Zhu Y, Hernandez LM, Dong YQ, Himes JH, Hirschfeld S, **Forman MR**. Longer breast feeding duration reduces the positive relationship between gestational weight gain, birth weight, and childhood anthropometrics. J Commun Health and Epidemiol 2015 Jul;69(7):632-8. PMID: 25680365.

3. Schraw J, Dong Y-Q, Okcu M, Scheurer M, **Forman MR**. Longer formula feeding and later introduction of solids increase the risk for acute lymphoblastic leukemia. Cancer Causes & Control 2014Jan:25(1):73-80. PMID: 24154567

**Link to selected publications for Forman MR:**
https://www.ncbi.nlm.nih.gov/pubmed/?term=Forman+MR

**D. Research Support**

**Ongoing Research Support**

P30NR015335-01 (Kim, PI) 09/25/14-07/31/19
National Institute of Nursing Research
Center for Transdisciplinary Collaborative Research In Self-Management Science (TCRSS)
A model national center, TCRSS, utilizing four Cores (Administration, Pilot & Feasibility, Innovations in Methods & Technology, and Community Engagement & Translation) will provide infrastructure, research training and resources, expert mentoring and trans-disciplinary collaborations that will facilitate the development, testing, and evaluation of cost-effective self-management interventions for improving patient-centered care and health outcomes including health-related quality of life for individuals, families, and communities. Specifically I lead pilot study of diet and lifestyle amongst kidney patients to assess whether dietary modifications can reduce risk for dialysis.
Role: Co-Investigator
Responsibilities: I designed, conducted and interpreted the results from the pilot study of mindful eating on health of stage 2-3 chronic renal disease patients in Austin Texas. The results of the pilot study have been accepted with revision to the Journal of Behavioral Medicine. A R01 grant on this topic will be submitted this February to NIH.

T32LM012414 (M.J. Daniels, L. Ancel-Meyers, and I. Dhillon, PIs) 04/01/16-05/31/21
National Library of Medicine
Predoctoral Training in Biomedical Big Data Science
This innovative graduate program will help to train a new generation of scientists with expertise in statistics, computer science, and biology in order to solve important public health problems involving big data and improve overall health.
Role: Program Faculty
Responsibilities: I mentor students using data from my ongoing research for the training grant and train them in epidemiology, nutrition and life course research. The students will defend and receive their doctorates.

**Completed Research Support**

N01-HD-80020 (M.R. Forman, PI) 09/26/08-09/25/13
NIH/NICHD/Baylor College of Medicine
Harris County Hospital University National Children's Study (NCS) Center
The major goal of this project was to serve as NCS Harris County Study Location and follow mothers and their offspring from pre-birth through 21 years of age with the intent to evaluation exposures throughout the life course as well as prior to conception.
Role: Principal Investigator
Responsibilities: I was the PI for the NCS Harris County and Travis County. The pilot project for the NCS was published in *Pediatrics* 2016 PMID: 27251871; and also PMID: 26869364.

HHSN275200800020C (M.R., Forman, PI)
NIH/NICHD/Baylor College of Medicine, 10/04/10−9/03/13
National Children's Study - Formative Research in Anthropometrics: Measurement of the ulnar and other measures in mothers and their offspring.
Role: Principal Investigator
I was responsible for the formative research in growth in children across 9 centers in the NCS, the results of which have implications for measurement of weight and length/height across the life course. See PMID: 25031329; 25680365; 26515468.