NAME Mary Elizabeth Norton	POSITION TITLE Professor
eRA COMMONS USER NAME (credential, e.g., agency login) nortonm	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	MM/YY	FIELD OF STUDY
University of Washington, Seattle, WA	B.A.	1982	Zoology/Russian
University of Washington, Seattle, WA	M.D.	1986	Medicine
Tufts University Affiliated Hospital, Boston, MA	Internship Residency	1990	OB/GYN
University of California, San Francisco, CA	Fellowship	1993	Maternal Fetal Medicine and Clinical Genetics

A. Personal Statement

I am a Professor of Obstetrics, Gynecology and Reproductive Sciences at the University of California, San Francisco. I am the Vice Chair of Clinical and Translational Genetics and Genomics in my department. I have a courtesy appointment in Pediatrics, and an appointment in the UCSF Institute of Human Genetics. I am interim co-chief of the Division of Medical Genetics in the Dept of Pediatrics. I have been involved in clinical research and clinical trials throughout my academic career, and have particular interest in studies focused on pregnancy, prenatal diagnosis, and perinatal genetics. My experience in clinical research is extensive and varied, and involves substantial collaboration across departments and sites. I have collaborated in numerous multi-center trials, as PI as well as site PI and co-investigator. In my previous position as Director of Perinatal Research at Stanford, I was PI of the NICHD sponsored Maternal Fetal Medicine Units Network site. I recently completed a multi-site, NICHD sponsored trial ("EPIC") as the primary co-PI; the primary manuscript was published in JAMA, and was lead co-PI on a multicenter trial of cell free fetal DNA for prenatal aneuploidy detection ("NEXT") that is an international study involving numerous sites; the study was recently completed and has been accepted in a major journal. I have been, or currently am, on several national committees that are involved in national guidelines regarding genetic testing, including ACOG Committee on Genetics and the SMFM Publications Committee. I was recently named President of the Perinatal Quality Foundation, and President-Elect of the Society for Maternal-Fetal Medicine. I have been a close collaborator with the California Genetic Disease Screening Program and have published and presented a number of studies with that group. I have been involved in numerous other collaborative investigations involving analysis of large databases, including a study of changes in prenatal testing rates, and the association of congenital heart disease with monochorionic twin pregnancy, both through Kaiser Permanente. In addition, I have participated as a member of a DSMB for a clinical fetal therapy trial, and as a member of the Fetal Therapy Oversight Committee at UCSF.

B. Positions and Honors

Positions and Employment

1993-1994 Assistant Professor of OB/GYN, Tufts University, Boston, MA
1995-1996 Instructor of OB/GYN & Reproductive Biology, Harvard Medical School
1996-1998 Assistant Professor of OB/GYN & Reproductive Biology, Harvard Medical School
1998-2001 Assistant Clinical Professor of OB/GYN & RS and Radiology, UCSF
2002-2004 Associate Clinical Professor of OB/GYN & RS and Radiology, UCSF
2002-2007 Director, Division of Perinatal Medicine and Genetics, Dept of OB/GYN & RS, UCSF
2004-2006 Associate Professor of Clinical OB/GYN & RS, Radiology and Pediatrics, UCSF

2006-2007 Professor of Clinical OB/GYN & RS, Radiology and Pediatrics, UCSF
2007-2010 Regional Director, Perinatal Genetic Services, Kaiser Permanente, Northern California
2007-2010 Adjunct Professor of Medical Genetics and of OB/GYN, Stanford University
2010-2013 Professor of Obstetrics and Gynecology, Stanford University
2013- Professor of Obstetrics, Gynecology and Reproductive Sciences, UCSF

Other Positions Held Concurrently

1998-07 Faculty Member, Combined UCSF/Stanford Medical Genetics Training Program
1999-07 Director, Prenatal Diagnosis Center, CA Genetic Disease Branch,Dept of OB/Gyn, UCSF
2002-06 Co-Director, Maternal-Fetal Medicine Fellowship Program, Dept of OB/Gyn, UCSF
2003-06 Director, Reproductive Genetics Research Program, Dept of OB/Gyn, UCSF
2006- Core Member, Institute of Human Genetics, UCSF
2006-07 Director, MFM Fellowship Program and MFM/Genetics Combined Program, UCSF
2007-10 Director, Prenatal Diagnosis Centers, CA State Genetic Disease Screening Program, KPNC
2010-13 Director, Perinatal Research, Dept of Obstetrics & Gynecology, Stanford
2011- Co-Editor for Obstetrics, *Obstetrical and Gynecological Survey*
2013- Member, Advisory Board, CSU/UCSF Genetic Counselor Training Program
2013- Interim co-Director, Division of Medical Genetics, Department of Pediatrics, UCSF

Professional Memberships

1990- Member, American Society of Human Genetics
1993- Member, Society of Maternal-Fetal Medicine (formerly SPO)
1997- Fellow, American College of Obstetricians and Gynecologists
1997- Member, American Institute of Ultrasound in Medicine
2001- Fellow, American College of Medical Genetics
2001- Fellow, San Francisco Gyn Society
2006- Fellow, Pacific Coast Ob/Gyn Society

Service to Professional Organizations

2000 Ad hoc grant reviewer, National Institutes of Health
2004-07 Member, Program Committee, American Society of Human Genetics
2005- Examiner, American Board of Obstetrics and Gynecology, MFM oral subspecialty exam
2006-14 Member, Research Review Committee, SMFM/ Editorial Board AJOG Special SMFM Edition
2007-13 Member, Advisory Board, Stanford University Genetic Counseling Program
2008 Ad hoc reviewer, National Institutes of Health contract applications
2008-12 Member, Society of Maternal Fetal Medicine Board of Directors
2008-10 Member, DSMB, UCSF Trial of Steroids for Prenatal Treatment of CCAM
2009- Member, Advisory Committee, State of California Genetic Disease Screening Program
2009- Member, CQI and Perinatal Committees, State of California Genetic Disease Screening Program
2009-12 Fetal Echocardiography Task Force (AIUM, ACOG, SMFM)
2009-10 Ad hoc grant reviewer, Royal College of Ob/Gyn (UK)
2010-11 President-San Francisco Gyn Society
2010-14 Member, ACOG Committee on Genetics
2012 Program Chair, Society of Maternal Fetal Medicine Annual Meeting
2012-13 Vice-Chair, ACOG Committee on Genetics
2012- Member, SMFM Publications Committee
2014- Vice Chair, SMFM Publications Committee
2012 Ad hoc reviewer, National Institutes of Health contract application, Perinatal Research Branch
2013- Editorial board member, *Obstetrics and Gynecology*
2014- President-elect, Society for Maternal-Fetal Medicine
2014- President, Perinatal Quality Foundation

Honors

1981 Excellence in Undergraduate Research Award, University of Washington

1993 Society of Perinatal Obstetricians Award, Outstanding Research by a Fellow-in Training
1995 Berlex Foundation Reproductive Epidemiology and Clinical Trial Design Program
2004,'05,'06 THANKS Star Award for Exceptional Service to UCSF Medical Center
2005 Outstanding Resident Teaching Award
2007 Top 5% peer-reviewer, *American Journal of Obstetrics & Gynecology*
2007, '10 Top 3% peer-reviewer, *British Journal of Obstetrics & Gynecology*
2009- "Best Doctors in America," Maternal Fetal Medicine and Clinical Genetics
2014 SMFM; Dru Carlson Award for Best Research in Ultrasound and Genetics

C. Selected Peer-reviewed Publications (Selected from 84 peer reviewed publications)

1. **Norton ME**, Merrill J, Cooper BA, Kuller JA, Clyman RI. Neonatal complications after the administration of indomethacin for preterm labor. N Engl J Med. 1993;329:1602-7.
2. Shaffer BL, Caughey AB, **Norton ME**. Variation in the decision to terminate pregnancy in the setting of fetal aneuploidy. Prenat Diagn. 2006;26:667-71.
3. Bianco K, Caughey AB, Shaffer BL, Davis R, **Norton ME**. History of miscarriage and increased incidence of fetal aneuploidy in subsequent pregnancy. Obstet Gynecol. 2006;107:1098-102.
4. Caughey AB, Hopkins LM, **Norton ME**. Chorionic villus sampling compared with amniocentesis and the difference in the rate of pregnancy loss. Obstet Gynecol. 2006;108:612-6.
5. **Norton ME**, Hopkins LM, Pena S, Krantz D, Caughey AB. First-trimester combined screening: experience with an instant results approach. Am J Obstet Gynecol. 2007 Jun;196(6):606.e1-5
6. Kuppermann M**, Norton ME**, Gates E, Gregorich SE, Learman LA, Nakagawa S, et al. Randomized study of a computerized prenatal genetic testing decision-assisting tool. Obstet Gynecol, 2009 Jan; 113(1):53-63.
7. **Norton ME**, Brar H,Weiss J,et al.Non-Invasive Chromosomal Evaluation Study: results of a multicenter prospective cohort study for detection of fetal trisomy 21 and trisomy 18. AJOG 2013;207:137.e1-8.
8. Brar H, Wang E, Struble C, Musci T, **Norton ME**. The fetal fraction of cell-free DNA in maternal plasma is not affected by a priori risk of fetal trisomy. J Matern Fetal Neonatal Med. 2013 Jan;26(2):143-5.
9. **Norton ME,** Nakgawa S, Norem C, Gregorich SE, Kuppermann M. Effects of Changes in Prenatal Aneuploidy Screening Policies in an Integrated Health Care System.Obstet Gynecol 2013;Feb;121:265-71.
10. **Norton ME,** Rose NC, Benn, P. Noninvasive Prenatal Testing for Fetal Aneuploidy: Clinical assessment and a plea for restraint. Obstet Gynecol. 2013 Apr;121(4):847-50.
11. **Norton ME**, Nakagawa S, Kuppermann M. Women's Attitudes Regarding Prenatal Testing for a Range of Congenital Disorders of Varying Severity. J Clin Med. *In Press.*
12. Gregg AR, Van den Veyver IB, Gross SJ, Madankumar R, Rink BD, **Norton ME**. Noninvasive prenatal screening by next-generation sequencing. Annu Rev Genomics Hum Genet. 2014;15:327-47.
13. **Norton ME,** Jelliffe-Pawlowski LL, Currier RJ. Chromosome Abnormalities Detected by Current Prenatal Screening and Noninvasive Prenatal Testing, Obstet Gynecol 2014;124(5):979-86.
14. Kuppermann M, Pena S, Bishop JT, Nakagawa S, Gregorich SE, Sit A, Vargas J, Caughey AB, Sykes S, Pierce L, **Norton ME.** Effect of Enhanced Information, Values Clarification, and Removal of Financial Barriers on Use of Prenatal Genetic Testing: A Randomized Clinical Trial.JAMA 2014:24;312:1210-7.
15. Gregg AR, Van den Veyver IB, Gross SJ, Madankumar R, Rink BD, **Norton ME**. Noninvasive prenatal screening by next-generation sequencing. Annu Rev Genomics Hum Genet. 2014;15:327-47.

Research Support

Ongoing Research Support

Bill & Melinda Gates Foundation 06/01/14-05/31/24
UCSF Preterm Birth Initiative
The goal is to establish a research program focused on global and regional decrease in the morbidities associated with preterm birth.
Role: Co-I

Bill and Melinda Gates Foundation Grand Challenges award 01/01/15-12/31/16 0.6 cal months
Gestational Dating at Birth by Metabolic Profile
The goal of this project is to leverage the newborn metabolic screening results of more than one million singleton newborns to create a first of its kind, metabolic gestational dating algorithm.

Role: co-Investigator

Dept of Ob/Gyn and Reproductive Sciences 04/01/14-03/31/15
Prenatal Genomic Medicine Project Development Funds
The goal is to develop a broad, trans-disciplinary program aimed at investigating, implementing, and improving outcomes surrounding prenatal genomic medicine.
Role: PI

UC Office of the President 01/01/14-12/13/14
UC Maternal Fetal Medicine Research Consortium
The goal is to establish a research network in Maternal Fetal Medicine between the 5 UC Medical Centers
Role: PI

Completed Research Support

SPO #106159 02/01/12-01/31/14
Ariosa Diagnostics
Non-invasive Examination of Trisomy (NEXT)
The major goals of this multicenter project are to investigate a non-invasive maternal serum test utilizing cell free fetal DNA to identify pregnancies affected by fetal chromosome abnormalities and compare to current screening in 25,000 low risk women.
Role: Co-PI

SPO #108582 10/08/12-10/08/13
Ariosa Diagnostics
Assay Development for Robertsonian Translocation Detection
The goal of this project is to develop an assay for detection of Robertsonian translocations in maternal serum.
Role: PI

U10 HD 068268 Norton (PI) 04/01/11-03/31/16
NIH/NICHD
Eunice Kennedy Shriver NICHD Maternal Fetal Medicine Units Network
Goal: The goal of this project is to participate with the NICHD in an ongoing multi-center program designed to investigate problems in clinical obstetrics.
Role: PI

March of Dimes Birth Defects Foundation (PI-Stevenson, David K.) 01/01/11 - 12/31/12
Stanford Center for the Study of Preterm Birth
The goal of this project is to investigate the etiology of preterm through a transdisciplinary program focused on interrogation of large data sets, environmental wide association study, and the maternal microbiome.
Role: Co-I

SPO #52417
Tandem Diagnostics 04/15/11 - 12/31/11
Investigational Study of a Prenatal Diagnostic Test for Fetal Aneuploidy
The major goals of this project are to investigate a novel maternal serum test to identify pregnancies affected by fetal chromosome abnormalities.
Role: PI

R01 HD049686 Kuppermann (PI) 03/01/06 – 02/28/11
NIH/NICHD
Expanded Prenatal Testing Options and Informed Choice
The major goal of this study is to determine choices made by women regarding prenatal diagnostic testing in a setting of comprehensive informed decision-making and expanded testing options. I am the primary co-investigator.
Role: Co-I