

CURRICULUM VITAE

DATE PREPARED: January 23, 2016

PART I: General Information

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Education:

1972 B.A./B.P.E., MCMASTER UNIVERSITY, CANADA
1979 M. SC., MCMASTER UNIVERSITY, CANADA
1981 M.D., MCMASTER UNIVERSITY, CANADA

Postdoctoral Training:

1981-1982 Resident 1, Internal Medicine, McMaster University
1982-1983 Resident 2, Internal Medicine, McMaster University
1983-1984 Chief Resident, Internal Medicine, McMaster University
1984-1985 Clinical Fellowship, Endocrinology, Massachusetts General Hospital
1986-1987 Research Fellowship, Endocrinology, Massachusetts General Hospital

Licensure and Certification:

1984 Fellow of the Royal College of Physicians and Surgeons of Canada
1984 Ontario Canada Medical License (Inactive)
1985 Massachusetts Medical License
1986 American Board of Internal Medicine
1988 American Board of Internal Medicine (Endocrinology & Metabolism)

Appointments:

1984-1987 Research Fellow in Medicine, Harvard Medical School, Boston, MA
1987-1990 Instructor in Medicine, Harvard Medical School, Boston, MA
1990-1999 Assistant Professor of Medicine, Harvard Medical School, Boston, MA
1999-2007 Associate Professor of Medicine, Harvard Medical School, Boston, MA
2000-2005 Visiting Scientist, Massachusetts Institute of Technology, Cambridge, MA
2003-2014 Affiliate Faculty, Division of Sleep Medicine, Harvard Medical School,
Boston, MA
2007-(2015) Professor of Medicine, Harvard Medical School, Boston, MA
2014-2015 Consultant, NIEHS Intramural Program (Kelly Services Contract)
2015- Senior Investigator, National Institute of Environmental Health Sciences, National

Institutes of Health, Research Triangle Park, NC

Hospital or Affiliated Institution Appointments:

1984-1989 Clinical and Research Fellow in Medicine and Gynecology, Massachusetts General Hospital, Boston, MA
1990-1992 Clinical Assistant in Medicine, Massachusetts General Hospital, Boston, MA
1993-1998 Assistant in Medicine, Massachusetts General Hospital, Boston, MA
1997-2014 Associate Physician, Active Affiliate Staff, Brigham and Women's Hospital, Boston, MA
1998-2005 Assistant Physician, Massachusetts General Hospital, Boston, MA
1998-2005 Affiliate Staff, Medical Service, Massachusetts Institute of Technology, Boston, MA
2006-2015 Associate Physician, Medical Service, Massachusetts General Hospital, Boston, MA
2015- Clinical Associate, Medical Service, Massachusetts General Hospital, Boston, MA

Hospital and Health Care Organization Clinical Service Responsibilities:

1989-2014 Reproductive Endocrine Associates, Massachusetts General Hospital
1990-2014 Attending Physician, Endocrine Unit, Massachusetts General Hospital
1993-1994 Attending Physician, Medical Service, Massachusetts General Hospital

Major Administrative Responsibilities:

1988-2014 Director, Female Physiology/Pathophysiology, Reproductive Endocrine Unit, Massachusetts General Hospital
1996-2002 Assistant Chief, Reproductive Endocrine Unit, Massachusetts General Hospital
1996-1998 Education Unit, Massachusetts General Hospital
1998-2004 Associate Director, Education Unit, Clinical Research Program, Massachusetts General Hospital
2001-2002 Medical Director, Research Subject Advocate Program, General Clinical Research Center, Massachusetts General Hospital
2002-2014 Associate Chief, Reproductive Endocrine Unit, Massachusetts General Hospital
2006-2008 Director, Research Subject Advocate Program, General Clinical Research Center, Massachusetts General Hospital
2000-2014 Co- Director, Education Unit, Clinical Research Program, Massachusetts General Hospital
2007-2014 Medical Director of Ultrasonography, Reproductive Endocrine Unit, Massachusetts General Hospital
2008-2009 Director of Clinical and Translational Studies (MGH), Harvard CATALYST (CTSA), Harvard Medical School

Major Committee Assignments:

Hospital

1992-1997 Member, Subcommittee for Review of Research Proposals, Massachusetts General Hospital
1993-1994 Member, Taskforce on Clinical Investigation, Physiology Subcommittee, Massachusetts General Hospital
1993-1994 Working Group Leader, Taskforce on Clinical Investigation, Infrastructure Subcommittee, Massachusetts General Hospital

- 1996-1998 Executive Committee on Teaching, Internal Review Panel Member, Massachusetts General Hospital
- 1999-2010 General Clinical Research Center Advisory Committee, Member, Massachusetts General Hospital
- 2000-2014 Co-Director, Clinical Research Program Education Unit, Massachusetts General Hospital
- 2001-2007 Women's Health Coordinating Council, Research Committee, Member, Massachusetts General Hospital
- 2004, 2005 Scientific Advisory Committee Annual Meeting, Small Group Faculty Session, Massachusetts General Hospital
- 2006 Member, Department of Medicine Taskforce on Women's Health, Member, Massachusetts General Hospital
- 2009-2011 Steering Committee Member, Women in Medicine Committee, Department of Medicine, Massachusetts General Hospital

Harvard Medical School

- 1999-2006 Research Core, Center of Excellence in Women's Health, Member, Harvard Medical School
- 1999-2002 Co-Chair, Research Core, Center of Excellence in Women's Health, Harvard Medical School
- 2002-2006 Executive Committee, Scholars in Clinical Science Program, Harvard Medical School
- 2001-2010 Faculty Fellowships Selection Committee, Harvard Medical School
- 2002 Mentoring Awards Selection Committee, Harvard Medical School
- 2003-2014 Council of Distinguished Scholars, Harvard Medical School
- 2003 HMS Accreditation Site Visit, Faculty Participant, Harvard Medical School
- 1996-2012 Executive Committee, Building Interdisciplinary Research Careers in Women's Health (BIRCHW) Program, Harvard Medical School
- 2008-2009 Education and Training Executive Committee, Harvard CATALYST (CTSC), Harvard Medical School
- 2008-2009 Chair, Education & Training/Information & Technology Subcommittee, Harvard CATALYST (CTSC), Harvard Medical School
- 2008 Member, Promotions Committee for Professor Candidate
- 2010 Chair, Promotions Committee for Professor Candidate
- 2010-2013 Curriculum Developer, Advanced Curriculum Committee, Harvard CATALYST (CTSD), Harvard Medical School
- 2011-2014 Member, Promotions & Reappointments Committee

National Institute of Environmental Health Science/National Institutes of Health

- 2014- Attending Member, Medical Executive Committee, Clinical Center, NIH
- 2015 Chair, NIEHS Search Committee for Epidemiology Branch Tenure-Track Position
- 2015- Member, NIEHS Division of Intramural Research Council
- 2015- Program Director, Fellowship in Environmental Medicine for 3rd-Year Medical Students, NIEHS
- 2015- Member, NIEHS Tenure-Track Review Committee
- 2016- Member, NIEHS Committee on Promotions I (COP1)
- 2016- Chair, NIEHS Search Committee for Epidemiology Branch Tenure-Track Position (#2)
- 2015- Member, Board of Advisors, Medical School Research Program, NIH

National/International

1991 Adolescence to Adulthood Working Group, Member, NIH Office of Research on Women's Health

1991 Reproductive Biology Core Group, Member, NIH Office of Research on Women's Health

1992 Reproductive Biology Study Section, Ad-Hoc Member, National Institutes of Health

1993 NIH Conference: "Kallmann's Syndrome: A Disorder of Neuronal Migration", Co-Chair, National Institutes of Health, NICHD/NIDDC

1993 General Clinical Research Centers Program, Grant Reviewer, NIH, National Center for Research Resources

1993 General Clinical Research Center Program, Site Visit Team, NIH, National Center for Research Resources

1993 Reproductive Biology Study Section, Ad-Hoc Member, NIH, National Center for Research Resources

1994 General Clinical Research Center Program, Site Visit Team, NIH, National Center for Research Resources

1995 NICHD Conference: "Psychobiology of Infertility and Reproductive Disorders", Co-Chair, National Institutes of Health

1994 SBIR Study Section, Ad-Hoc Member, National Institutes of Health

1996-2000 Reproductive Endocrine Study Section, Member, National Institutes of Health

1997 Special Emphasis Panel, Member, National Institutes of Health

1997 Adolescence to Adulthood Working Group, Member, NIH Office of Research on Women's Health

1998 General Clinical Research Center Program, Site Visit Team, NIH, National Center for Research Resources

1998 University-Industry Research Chair, External Reviewer, Medical Research Council of Canada

1998 Special Emphasis Panel, Member, National Institutes of Health

1999 Special Emphasis Panel, Member, National Institute of Environmental Health Sciences

1999 Special Emphasis Panel, Member, National Institutes of Health

2001 General Clinical Research Center Program, Site Visit Team, NIH, National Center for Research Resources

2002-2005 Scientific Advisory Council, Member, The Center for Menstrual Cycle and Ovulation Research, University of British Columbia

2002 General Clinical Research Center Program, Site Visit Team, NIH National Center for Research Resources

2002 Special Emphasis Panel, Member, National Institutes of Health

2002 Special Emphasis Panel, Chairperson, National Institutes of Health

2004-2006 External Advisory Committee, NIH Cooperative Reproductive Research Science Centers at Minority Institutions Program

2004 Reproductive Endocrine Study Section, Ad-Hoc Member, National Institutes of Health

2004-2005 Integrated and Comparative Endocrinology and Reproduction Study Section, Ad-Hoc Member, National Institutes of Health

2005-2009 Gynecology, Reproduction and Andrology Study Section, Member, National Institute of Child Health and Human Development Initial Review Group, National Institutes of Health

2005 Chair, Biology of the Perimenopause Study Section, National Institutes of Health

2006 Special Emphasis Panel (Fellowship), National Institutes of Health

2006 Special Emphasis Panel, National Institutes of Health

2007 Chair, Special Emphasis Panel, NICHD, National Institutes of Health
 2008 External Reviewer, Canadian Fund for Innovation Research Hospital Fund, Large-scale Institutional Endeavours
 2008 Chair, Special Emphasis Panel, NICHD, National Institutes of Health
 2009 External Reviewer NIH Challenge Grants
 2009 Special Emphasis Panel, NICHD, National Institutes of Health
 2010 Special Emphasis Panel, NICHD, National Institutes of Health
 2016 Special Emphasis Panel, NICHD, National Institutes of Health

Professional Societies:

1975-1993 American College of Sports Medicine, Member
 Awards Committee, 1988-1991
 Abstract Reviewer, 1989-1990
 1984-1992 American Federation of Medical Research, Member

 1986- Women in Endocrinology, Member
 Nominating Committee, 1996-1999
 Chair, Nominating Committee, 1997-1998
 Awards Committee, 2002-2005
 Chair, Awards Committee, 2003
President, 2006-2008
 Past-President, 2009

 1986- Endocrine Society, Member
 Abstract Reviewer, 1990-2006
 Public Communications Committee, 1996-1999
 Nominating Committee, 1999-2001
 Endocrine Self-Assessment Steering Committee, 1999-2005
 Chair, Nominating Committee, 2000-2001
 Research Affairs Committee, 2000-2004
 Chair Clinical Research Taskforce 2001-2003
 Chair, Clinical Research Subcommittee, 2002-2003
Vice President, Clinical Science, 2003-2006
 Chair, Clinical Scientist Taskforce, 2006
 Annual Meeting Steering Committee, 2006-2009
 Reproductive Endocrine Section Team Leader, 2006-2009
 Co-Chair, Bridge Grant Program, 2007-2008
President Elect, 2010
President, 2011
Immediate Past President, 2012
 Executive Committee 2010-2013
 Performance and Compensation Steering Committee 2010-2013
 Strategic Planning Committee 2010-2011
 Sex Steroid Assays Reporting Task Force, 2014

 1999-2010 Association for Patient-Oriented Research, Member
 Communications Committee Member, 2009
 2000-2014 American Medical Association, Member

- 2000- The North American Menopause Society, Member
2001-2008 Federation of American Societies for Experimental Biology (FASEB)
Board of Directors, 2001-2004
Public Advocacy Executive Committee, 2002-2004
Chair, Funding Conference NIH Committee, 2003,2004
Strategic Planning Conference, 2004
Public Advocacy Subcommittee
Clinical Research Subcommittee, 2005-2008
Chair, 2005-2006
Presidential Nominee, 2006
2002-2009 American Society for Reproductive Medicine, Member
2007- Society of Diagnostic Medical Sonography, Member
2006- Association of American Physicians, Member
2013- American Board of Internal Medicine (Exam
Committee)

Community Service Related to Professional Work:

- 1994-1996 Visiting Endocrinologist, Harvard Community Health Center
2005-2007 Consultant and Facilitator, Puberty Education Program, Buckingham, Browne &
Nichols School

Editorial Boards:

- 1990-2002 Reviewer, The Endocrinologist
1990- Reviewer, Fertility & Sterility
1990- Journal of Clinical Endocrinology & Metabolism
Reviewer, 1990-present
Editorial Board, 1994-1999
Associate Editor, 1999-2004
Associate Editor, 2009-2010
1990- Reviewer, Endocrinology
1990 Reviewer, Metabolism
1990- Reviewer, Menopause
1990- Reviewer, Human Reproduction
1990 Reviewer, Alcoholism: Clinical & Experimental Research
1990 Reviewer, Acta Endocrinologica
2000-2002 Current Opinion in Endocrinology and Diabetes
Editorial Board, 2000-2002
Section Editor, 2000-2002
Editorial Consultant, American College of Physicians—PIER
2006 Reviewer, Gynecological Endocrinology
2006 Reviewer, Biology of Reproduction
2005- Endocrine Reviews
Reviewer, 2005-present
Associate Editor, 2015-2018

Awards and Honors:

- 1968 McMaster University Entrance Scholarship, McMaster University, Canada
1968 Ontario Scholar, Province of Ontario

1969	Canadian Fitness and Sports Directorate Award, McMaster University, Canada
1984-1990	Fellowship, Medical Research Council of Canada
1998-	Listed in "The Best Doctors in America"
2000	A. Clifford Barger Excellence in Mentoring Award, Harvard Medical School
2002	Nominated for Best Lecturer in the Integrated Human Physiology Block, Harvard Medical School
2005	Partners in Excellence Award, Massachusetts General Hospital
2009-	Association of American Physicians
2009, 2012	The Commonwealth of Massachusetts Governor's Citation

Part II: Research, Teaching, and Clinical Contributions

A. Narrative report of Research, Teaching, and Clinical Contributions

Research: I am a physician-scientist who studies human reproductive physiology and pathophysiology with a view to translating this information to benefit women with reproductive disorders. The focus of my research in the broad area of women's health is on the neuroendocrine interactions that govern normal reproduction and the changes that occur with aging. We have used this information as a backdrop to provide insights into the pathophysiology of clinical reproductive endocrine disorders.

Using a combination of clinical models that include pre- and post-menopausal normal women and women with GnRH deficiency, as well as physiologic probes including GnRH, GnRH agonists and antagonists and estradiol, estrogen receptor blockers and aromatase inhibitors, frequent sampling studies for measurement of LH and gonadotropin free alpha subunit, and neuroimaging studies, my group has determined that: 1) generation of the midcycle surge in women does not require an increase in the frequency or overall amount of GnRH contrary to what is seen in animal models; 2) estrogen negative feedback in women largely at both the hypothalamus and the pituitary in women; 3) the increase in GnRH pulse frequency that occurs during the luteal-follicular transition in normal women is not only highly correlated with, but is required for the luteal-follicular rise in FSH that is critical to folliculogenesis; 4) inhibin B which is constitutively secreted by granulosa cells increases in response to the luteal-follicular rise in FSH and plays a physiologic role in augmenting the estrogen-induced suppression of FSH in the mid-follicular phase; 5) inhibin B is an early marker of declining ovarian function in late reproductive life, preceding decreases in inhibin A and estradiol; 6) while A and inhibin B reflect ovarian function, they are not useful predictors of pregnancy outcome in patients undergoing assisted reproductive therapies. We have further shown that African-American women have higher estradiol levels throughout the menstrual cycle due to upregulation of ovarian aromatase function compared with Caucasian women, a finding that may help to explain the disparities in disease prevalence in these two populations.

We have shown that sleep has a profound inhibitory effect on GnRH pulse frequency in women in the early follicular phase while circadian factors do not appear to influence gonadotropin secretion in women. Women who work shifts have an increased prevalence of irregular menstrual cycles and our ongoing studies are examining the implications of the kind of sleep disturbance that occurs in shift workers on menstrual cycle dynamics. We have demonstrated that deep sleep is an important driver of the nighttime GnRH and LH secretion that are critical to the onset of puberty, but that LH secretion is relatively resistant to sleep interruption in pubertal children.

My research group has defined the underlying abnormalities in GnRH secretion in hypothalamic amenorrhea (HA), polycystic ovarian syndrome (PCOS) and acquired hypogonadotropic

hypogonadism (AHH). We have developed the use of pulsatile GnRH to induce ovulation in a variety of disorders of ovulation. Using this form of treatment, conception rates are high in patients with isolated GnRH deficiency and Kallmann's Syndrome, HA and AHH and the risks of multiple gestation and hyperstimulation are lower than with alternative therapies. The importance of controlling the risk of multiple gestation is emphasized in studies in which we demonstrated the profound economic and psychosocial impact of this complication of ovulation induction. These studies were instrumental in the adoption of national guidelines to reduce multiple gestation in 'in vitro' fertilization (IVF) programs. Our studies in PCOS have demonstrated that gonadotropin levels are decreased by obesity and that this decrease is mediated at a pituitary rather than a hypothalamic level and is accompanied by an increase in the clearance of LH. We have had a longstanding interest in patients with idiopathic hypogonadotropic hypogonadism and in collaboration with others at MGH have begun to understand the genetic underpinnings of this disorder. Most recently, we have determined that the early response to pulsatile GnRH in these patients can be used to unearth defects at the pituitary (including but not limited to GnRH receptor mutations) and at the ovary.

My laboratory has made significant contributions to understanding the effects of aging on the neuroendocrine components of the reproductive system, using the model of postmenopausal women in whom ovarian steroidal inputs can be controlled. We have shown that in women, there are dramatic hypothalamic and pituitary changes that occur with aging – a decrease in secretion of LH and FSH with aging, a dramatic decrease in GnRH pulse frequency that is accompanied by an increase in the amount of GnRH secreted per bolus, a decrease in the pituitary response to GnRH with aging and prolonged disappearance of plasma LH with changes in the isoform composition of LH and FSH in postmenopausal women that is due in part to the loss of estrogen feedback and in part to aging per se. We have shown that estrogen negative feedback effects at both the hypothalamus and the pituitary are maintained with aging, but that estrogen positive feedback is attenuated with aging, mediated at the pituitary level. These studies support a model in which significant adaptations occur with aging in women that may function to prolong estrogen secretion despite dramatically declining ovarian function.

We are currently analyzing results of our randomized placebo controlled trial of physiologic estrogen replacement in postmenopausal women to determine if aging differentially affects the responses to estrogen in areas of the brain involved in cognition using both FDG-PET and fMRI. Our preliminary results indicate that activation of the dorsolateral pre-frontal cortex in response to a targeted challenge is greater in younger than in older postmenopausal women before treatment and does not change with placebo treatment in either group. However, with estrogen treatment there is greater activation in the DLPFC in younger than older postmenopausal women suggesting that either aging per se or a greater duration of estrogen deprivation results in resistance to the beneficial effects of estrogen on cognitive function. This analysis is actively ongoing and will provide an important backdrop to further neuroimaging studies at NIEHS.

Since moving to NIEHS as a Senior Investigator, I am continuing a number of longstanding collaborations as well as developing new studies. I am maintaining my program using pulsatile GnRH for ovulation induction in patients with GnRH deficiency at MGH while working to move this program to NIH. I continue to be involved in genotype/phenotype studies in collaboration with NICHD and MGH colleagues. Within this collaborative group I lead the genotype/phenotype studies in women with hypothalamic amenorrhea. At NIEHS my group has established a protocol to investigate factors leading to the variability in neuroendocrine responsiveness to physiologic environmental stresses in normal women that will provide critical insights into the pathophysiology of hypothalamic amenorrhea. I am collaborating with investigators in the Epidemiology Branch to investigate the impact of environmental toxins on reproductive function. In the next year, my group will re-establish our neuroimaging program, seeking to understand the effects of endocrine disruptors on cortical and hypothalamic function.

Teaching and Mentoring: I have a longstanding interest in mentoring and the bulk of my teaching involved the direct supervision of Fellows and students involved in clinical investigation. I was one of the first recipients of the Mid-Career Award for Mentoring in Clinical Investigation from the NIH (K24) and received the A. Clifford Barger Excellence in Mentoring Award from Harvard Medical School. I personally supervised one to two postdoctoral fellows per year and was involved in review of all applicants for research fellowships in the Reproductive Endocrine Unit and selection of those that to be supported by the Reproductive Endocrine Training Grant. I also personally supervised one to two pre-doctoral students per year for summer or full year training in clinical research, a number of whom were referred to my lab through the Harvard Medical School Pre-matriculation Summer Program for Minority Students. I was Co-Director of the Reproductive Endocrine Unit Biomedical Research Career program that sought to identify promising pre-doctoral students and introduce them to clinical or translational research and particularly focuses on supporting the careers of minority students. In addition, I provided close supervision and mentoring to several Fellows and Junior Faculty in other departments such as Psychiatry and the HMS Division of Sleep Medicine. I supervised Endocrine Fellows in my clinic and as attending physician. I was Co-Director of the Education Unit of the MGH Clinic Research Program and was involved in the design and organization of courses for Fellows and investigators interested in clinical research and in the mentoring of clinical investigators and taught in numerous courses. I also developed and directed courses in clinical research for the HMS CATALYST. I was a regular contributor to the course in clinical investigation offered to MGH medical house staff. I taught in the HMS I and HMS II Reproduction sections, and contributed to the HMS II Endocrinology section. I have contributed in the area of reproductive endocrinology to several noted textbooks in Medicine, Endocrinology and Reproductive Endocrinology. On a local level I was very involved in mentoring beyond my personal trainees with a particular emphasis on women and minorities. This extended to my work with Women in Endocrinology and the Endocrine Society both of which are international in their reach.

Clinical Activities: Until July 2014 I maintained an active clinical practice in the Reproductive Endocrine Associates practice at Massachusetts General Hospital. My practice was limited to patients with reproductive endocrine disorders. I saw patients with primary and secondary amenorrhea or other menstrual cycle disorders, including PCOS, and patients with infertility. While the majority of my patients were women, I also saw men with hypogonadism with or without infertility. As part of the treatment of infertility, I had an active ovulation induction program, which was both relatively unique in a department of Medicine, and was distinguished by high success rates and low rates of multiple gestation. I performed or supervised the ultrasound evaluation of these cycles as Medical Director of Ultrasonography for the Reproductive Endocrine Unit. Finally, I saw patients with issues relating to the perimenopause and menopause with assessment of the potential use of estrogen replacement or other therapies for management of symptoms.

Leadership: From a leadership perspective, in addition to the above, I was President of Women in Endocrinology, Vice-President, Clinical Science for the Endocrine Society and President of the Endocrine Society. In my positions in the Endocrine Society, I was involved in two separate rounds of strategic planning and during my Endocrine Society Presidency; I established a new focus for the Society on Health Disparities in Endocrinology and made significant advances in establishing the Society as a collaborative leader in the international community.

B. Funding Information

Past

1984-1989 P.I., Medical Research Council of Canada, Fellowship

- 1985-1989 Co-P.I., N.I.H., R01 HD15080 (WF Crowley, Jr), Neuroendocrine Control of Reproduction in the Female
- 1985-1989 Co-P.I., N.I.H., N01-HD-32837 (WF Crowley, Jr), Clinical Pharmacology of LHRH Antagonists in the Female
- 1989-1996 Project Co- P.I., N.I.H., U54-HD-29164 (WF Crowley, Jr), Infertility: Defects in LH/FSH Synthesis-Secretion-Action" Project I: "Neuroendocrine Control of Reproduction in the Female"
- 1989-1996 Project PI (JE Hall), N.I.H., U54-HD-29164 (WF Crowley, Jr), Infertility: Defects in LH/FSH Synthesis, Secretion and Action "Project II: Treatment of Infertility due to Ovulatory Dysfunction"
- 1990-1993 P.I., FDA, FD-R-000477 (JE Hall), Pulsatile GnRH in Anovulatory Infertility
- 1996-2002 Project PI (JE Hall), N.I.H., U54-HD-29164 (WF Crowley, Jr), National Center for Infertility Research at MGH "Project I Control of FSH in the Female: Relation to Infertility"
- 2000-2002 Co-Director Research Core, DHHS, 213-98-0009 (JA Bigby), National Center of Excellence in Women's Health
- 2001-2002 Medical Director, RSA Program, N.I.H., M01-RR-01066 (J Mongan), General Clinical Research Centers Program
- 2001-2003 P.I., HMS Fund for Women's Health (JE Hall), Multiple Births Outcome Study
- 2002-2007 PI Subcontract, N.I.H., R01-HD-40291 (EB Klerman), Impact of Sleep Disruption on Menstrual Cycle Dynamics
- 2002-2009 P.I., N.I.H., R01-HD-42708 (JE Hall), FSH, Estradiol and Inhibin in Female Reproduction
- 2008-2009 MGH Director of Clinical and Translational Studies, NIH,UL1 RR 025758 (LM Nadler), Clinical and Translational Science Center
- 1999-2009 P.I., N.I.H., K24-HD-01290 (JE Hall), Neuroendocrine Control of Reproduction in the Female
- 2010-2012 Curriculum Development, NIH,UL1 RR 025758 (LM Nadler), Clinical and Translational Science Center
- 2009-2014 Co-Investigator NIH R01 MH082922 (H Joffe)
- 1995-2015 Defining the Mechanisms of Menopause Related Sleep and Mood Disturbance
P.I., N.I.H., R01-AG-13241 (JE Hall)
Aging and the Hypothalamic-Pituitary Reproductive Axis

D. Report of Teaching

1. Local contributions

a. Medical School Courses

- 1987-1988 HMS Introduction to Clinical Medicine
- 1995-1997 HMS I Endocrinology
- 1996 HMS II Renal/Endocrine/Reproductive
- 1997-1998 HMS I Endocrinology
- 1997-1998 HMS II Endocrine/Reproductive
- 2001, 2003 HMS I Endocrinology
- 2006-2010 HMS II Musculoskeletal, Endocrine and Reproductive Pathophysiology

b. Graduate Medical Courses

- 1985-2014 Clinical Conference Series, Reproductive Endocrine Unit, Massachusetts General

- Hospital
- 1985-2014 Journal Club, Reproductive Endocrine Unit, Massachusetts General Hospital,
1994-1994 Introduction to Clinical Investigation - Study Design: Physiologic Investigation, Clinical Research Program, Massachusetts General Hospital
- 1998, 2004 Grant Writing Seminar, Clinical Research Program Massachusetts General Hospital
1998-1999 Issues in Physiologic Investigation, Choices of Models in Physiologic Studies, Clinical Research Program Massachusetts General Hospital
- 1999, 2001 Introduction to Clinical Investigation – Study Design: Physiologic Investigation, Clinical Research Program Massachusetts General Hospital
- 2000-2002 Tools of Physiologic Investigation: Choices of Models, Clinical Scholars Program, Harvard Medical School
- 2004-2012 Physiologic Studies, Tools of Human Investigation for Medical House Staff, Massachusetts General Hospital
- 2006 Writing Your First NIH Grant as a Young Investigator: How to Write an NIH Grant, Clinical Research Program Massachusetts General Hospital
- 2006-2014 Writing Your First NIH Grant as a Young Investigator: The Review Process, Clinical Research Program Massachusetts General Hospital
- 2011-2014 Protocol Development, Design and Conduct of Clinical Trials, Clinical Research Program Massachusetts General Hospital
- 2011-2014 Subject Recruitment, Design and Conduct of Clinical Trials, Clinical Research Program Massachusetts General Hospital

c. Continuing Medical Education Courses

- 1986-1995 Lecturer, Reproductive Endocrine Postgraduate Course, Harvard Medical School, Boston, MA
- 1989-1996 Lecturer, Primary Care of Women Postgraduate Course, Harvard Medical School, Boston, MA
- 1991-present Lecturer, Massachusetts General Hospital Clinical Endocrinology Postgraduate Course, Harvard Medical School, Boston, MA
- 1991-present Problem Seminar, Massachusetts General Hospital, Clinical Endocrinology Postgraduate Course, Harvard Medical School, Boston, MA
- 1997-2002 Lecturer, Massachusetts General Hospital Primary Care Postgraduate Course, Harvard Medical School, Boston, MA
- 2001-2002 Lecturer, The X and Y: Current Topics in Gender-Specific Medicine , Harvard Medical School Postgraduate Course, Boston, MA
- 2009 Lecturer, Brigham and Women’s Hospital, Reproductive Endocrinology & Infertility Postgraduate Course, Harvard Medical School, Boston, MA
- 2009 Workshop, Brigham and Women’s Hospital, Reproductive Endocrinology & Infertility Postgraduate Course, Harvard Medical School, Boston, MA
- 2015 Lecturer, Current Trends in Medicine: Endocrinology, International Program in Medical Education, Harvard Medical School Postgraduate Program, Boston, MA

d. Advisory and Supervisory Responsibilities in Clinical or Laboratory Setting

- 1989-1990 Medical Student, Supervision of HMS Research Year and Honors Thesis, Harvard Medical School, Boston, MA
- 1989-1998 Supervision of 2 Fellows in Reproductive Endocrine Clinic, Massachusetts General Hospital

1990-2013 Attending in Endocrinology, Massachusetts General Hospital

1991 Undergraduate Student, Scholar of the College Research Project, Boston College, Brookline, MA

1991-1994 Medical Student, Supervision of HMS student research project - summer research experience (MGH Summer Minority Research Training Program), HMS Enrichment Program, HMS Soma Weiss oral presentation, HMS research year (NIH Minority Student Supplement) and MPP thesis advisor, Harvard Medical School, Boston, MA and the Kennedy School of Government, Harvard College, Cambridge, MA

1993 Undergraduate Student, Honors Thesis Project, Boston College, Brookline, MA

1993-1994 Attending Physician, Medical Service, Massachusetts General Hospital

1994 Medical Students, Supervision of HMS summer student research project (MGH Summer Minority Research Training Program) and HMS Soma Weiss poster, Harvard Medical School

1994 Medical Student, Supervisor of research project, Brown University, Providence, RI

1995 College Student, Supervision of summer research project, Massachusetts General Hospital

1995 College Student, Supervision of summer research project, Summer Minority Research Training Program, Massachusetts General Hospital,

1996-1997 Post Baccalaureate Student, Supervisor of year-long research project, Massachusetts General Hospital

1996-2001 Medical Student, Supervisor of student research projects - summer (MGH Summer Minority Research Training Program), summer (GCRC Student Fellowship), HMS Enrichment Program and HMS Soma Weiss posters, HMS research year (NIH Minority Supplement) and HMS Honors Thesis, Harvard Medical School, Boston, MA

1997-1998 Post Baccalaureate Student, Supervision of year-long research project, Massachusetts General Hospital

1998-2013 Supervision of Fellow in Reproductive Endocrine Clinic, Massachusetts General Hospital

1998 Co-supervisor of Project Success Summer Research Internship, Harvard University

1998 Medical Student, Supervision of HMS Advanced Biomedical Sciences Program research project, Harvard Medical School

2000 Medical Student, Supervisor, HMS II PASTEUR Program summer research, Harvard Medical School

2000 Medical Student, Supervisor, Summer Research Fellowship, University of Massachusetts Medical School, Worcester, MA

2000-2004 Medical Student, Supervisor of research project - HMS Pre-matriculation Summer Program for Minority Students, HMS Enrichment Program, HMS Soma Weiss posters, HMS Honors Thesis, Harvard Medical School

2002 Faculty Advisor for Biomedical Science Careers Student Conference for Minority Students, Harvard Medical School

2003 Medical Students, Supervisor of research project - HMS Pre-Matriculation Summer Enrichment Program for Minority Students, Harvard Medical School

2003 Senior Faculty Mentor, Council of Distinguished Scholars Mentoring Conference, Harvard Medical School

2004 Medical Student, Supervision of summer research project - HMS Pre-matriculation Summer Enrichment Program for Minority Students, Harvard Medical School

2004 Medical Student, Supervision of summer research project, Massachusetts

General Hospital
 2004 Small Group Discussion Leader, HMS Leadership Development for Physicians and Scientists, Harvard Medical School
 2005 Undergraduate Student (Tufts University), Supervision of research project, Massachusetts General Hospital
 2006 Predoctoral Student, Biomedical Research Career Award supervisor, Massachusetts General Hospital
 2006 Medical Students, Supervisor of research project - HMS Pre-Matriculation Summer Enrichment Program for Minority Students, Harvard Medical School
 2006 Predoctoral Student, Clinical Research Internship, Massachusetts General Hospital
 2007 Medical Student, Supervision of research project, Massachusetts General Hospital
 2007 Nursing/NP Student, Supervision of research experience, Massachusetts General Hospital
 2007-2009 MD Research Fellow, MD (FMG) full-time Supervision of research experience and scholarly writing, Massachusetts General Hospital
 2008-2015 MD Research Fellow full-time Supervision of research experience, Massachusetts General Hospital
 2009- 2014 Post-graduate and Undergraduate Student Supervision of research experience, Massachusetts General Hospital
 2007 Medical Student, Supervision of research experience, Massachusetts General Hospital
 2015 Post-Baccalaureate Student, Intramural Research Training Program, NIEHS, Research Triangle Park, NC

e. Leadership Roles

1985-1986 Coordinator, Reproductive Endocrine Unit Basic Science Seminar Series, Massachusetts General Hospital
 1987-1989 Coordinator, Reproductive Endocrine Unit Journal Club, Massachusetts General Hospital
 1988-1990 Course Director, Reproductive Endocrine Unit Clinical Conference Series, Massachusetts General Hospital
 1988-1991 Co-Director, Reproductive Endocrine Post-Graduate Course, Massachusetts General Hospital
 1990- Co-Director, Biomedical Research Career Award Program, Reproductive Endocrine Unit, Massachusetts General Hospital
 1993-1997 Staff Supervisor, Reproductive Endocrine Unit Clinical Conference Series, Massachusetts General Hospital
 1995-1997 Co-Director, MGH/BWH Joint Reproductive Endocrinology Research Seminar Series, Brigham and Women's Hospital and MGH
 1996-2004 Course Director, Introduction to Clinical Investigation, Clinical Research Program, Massachusetts General Hospital
 1997-2005 Course Development and Director, Design and Conduct of Clinical Trials, Clinical Research Program, Massachusetts General Hospital
 1998-1999 Course Development and Director, Issues in Physiologic Investigation, Clinical Research Program, Massachusetts General Hospital
 1998-2004 Co-Director of Seminars in Biostatistics, Clinical Research Program, Massachusetts General Hospital
 1998-2004 Co-Director of Grant-Writing Seminar, Clinical Research Program, Massachusetts General Hospital
 2002 Co-Director, Recruiting Minority Women into Clinical Trials, Harvard Medical

2011 School
 Course Director, Design and Implementation of Clinical Trials, CATALYST
 (CTSA), Harvard Medical School

f. Advisees/Trainees

<i>Training</i>	<i>Name</i>	<i>Current Position</i>
<i>Duration</i>		
1988-1990	Ann E. Taylor, MD	Translational Sciences Head for Diabetes & Metabolism, Novartis Inc.
1989-1990	Lori Kaplowitz, MD	Child Psychiatry/Women's Health, Cambridge City Hospital
1992-1993	Tamara Callahan, MD	Assistant Professor of Ob/Gyn, Vanderbilt School of Medicine, Medical Director, Ob/Gyn, Vanderbilt Clinic
1993-1994	Linda Spence	
1993-1995	Vivian Fuh, MD	Director, Worldwide Regulatory Affairs, Merck Research Labs
1994 -	Corrine K. Welt, MD	Assistant Professor of Medicine, Harvard Medical School
1995-1996	Catherine Rowbatham, MSc, MBA	Organizational Development, General Electric
1996-1997	Carrie Strauss, MD	Department of Emergency Medicine, Lee Memorial Hospital, Fort Meyers, FL
1996-1998	Julie Sharpless, MD	Assistant Professor of Medicine, University of North Carolina Chapel Hill, NC
1996-1998	Helen Lavoie, MD	Assistant Professor of Medicine, University of Montreal; Consultant in Reproductive Endocrinology and Director of Clinical Research, Procrea BioScience, Montreal, CA
1996-2003	Erica Marsh, MD	Assistant Professor of Obstetrics & Gynecology, Northwestern University School of Medicine, Chicago, IL
1998-1999	Yousef Bo-Abbas, MD	Assistant Professor of Medicine, Kuwait University
1999-	Hadine Joffe, MD	Associate Professor in Psychiatry, Massachusetts General Hospital, Harvard Medical School
1999	Annie Brewster, MD	Graduate, Harvard Medical School
1999-2001	Sabrina Gill, MD	Clinical Assistant Professor, Division of Endocrinology & Metabolism, University of British Columbia
1999-	Elizabeth Klerman, MD	Associate Professor of Medicine, Harvard Medical School, Associate Physician, Brigham & Women's Hospital and Division of Sleep Medicine, Harvard Medical School
2000	Sue Gurgel, MD	Graduate, Harvard Medical School
2000	Leah Doret, MD	Graduate University of Massachusetts Medical School; Fallon Clinic, Chalton, MA
2000-2003	Yanira Pagan, MD	Assistant Professor of Pediatrics, University of Puerto Rico School of Medicine
2000-2003	Marcia Ellison, PhD	Ellertson Fellow, Bixby Center for Reproductive Health Research & Policy Dept. of Obstetrics, Gynecology & Reproductive Sciences University of California, San Francisco
2000-2004	Tami Tiamfooks, MD	Resident, Harvard Affiliated Emergency Medicine Residency, Harvard Medical School

2001-2004	Myles Wolfe, M.D.	Assistant Professor in Medicine, Miller School of Medicine, University of Miami
2003	Roberta Capp, BA	Graduate, Harvard Medical School
2003-2004	William Ottowitz, MD	Graduate School of Arts and Sciences, Columbia University
2004	Fred Papali, BSc	Graduate, McGill University School of Medicine
2004	Amsalu Dabela, BA	Graduate, Harvard Medical School
2004-2007	Serene Srouji, MD	Instructor in Obstetrics & Gynecology, Brigham & Women's Hospital, Harvard Medical School
2005-2007	Stephanie Histed, BA	UCLA School of Medicine
2006	Cryselia Smith, BS	Harvard Medical School
2007	Julie Lamusta, BA	University of Massachusetts Medical School
2007-2009	Alice Lorch, BS	Harvard Medical School
2007	Melanie (Knapp) Gaucher, BA	Emerson College School of Nursing
2007-2009	Anupam Gupta, MD	Research Associate
2008	Nicole Panico	Amherst College, Massachusetts
2008-	Natalie Shaw, MD	Assistant Professor, Children's Hospital Boston and Research Fellow, Massachusetts General Hospital; Tenure-Track Investigator, NIEHS, Research Triangle Park, NC
2009-2011	Kara Klingman, BA	University of Vermont Medical School
2009-	Brent Abel	Tufts University student; currently Research Assistant NIH Clinical Center
2010	Jenifer Brown, BSc	Harvard Medical School
2011-2012	Kathryn Williams, BA	Cornell Medical School
2012-2014	Taylor Huhta, BSc	Tufts Medical School
2015-2016	Devin Sullivan, BSc, MSc	NIEHS, applying for medical schools

g. Local Invited Presentations, Case Preparation and Comments

1986-1990	"Reproduction in Men and Women", Seminar, MGH Institute of Health Professions, Boston, MA
1987	"Use of a GnRH Antagonist in Women", Oral Presentation, MGH Research Symposium XI, Massachusetts General Hospital
1990	"The Use of GnRH Antagonists as Physiologic Probes", Obstetrics & Gynecology Rounds, Brigham and Women's Hospital, Boston, MA
1990	"Pulsatile GnRH in Patients with Reproductive Dysfunction", Obstetrics & Gynecology Rounds, Massachusetts General Hospital
1990	"Pulsatile GnRH for Treatment of Infertility", Interview, Channel 7, Boston, MA
1990	"Pulsatile GnRH in Hypogonadotropic Hypogonadism", Pediatric Endocrine Rounds, Massachusetts General Hospital
1991	"GnRH Antagonists: Insights into the Differential Control of LH and FSH", Endocrine Grand Rounds, Massachusetts General Hospital
1991	"The Use of GnRH Antagonists to Provide Insights into the Control of Reproduction", Endocrine Grand Rounds, Tufts New England Medical Center, Boston, MA
1991	"Medical Implications of Polycystic Ovarian Disease", Medical Grand Rounds Massachusetts General Hospital
1992	"Acquired GnRH Deficiency", Pediatric Endocrine Rounds, Massachusetts General Hospital
1992	"Ovulation Induction: Evaluating the Choices", Medical Grand Rounds,

- Massachusetts General Hospital
- 1992 "GnRH Antagonists as Physiologic Probes", Endocrine Grand Rounds, Brigham and Women's Hospital, Boston, MA
- 1993 Clinical Pathological Conference, Massachusetts General Hospital
- 1993 "GnRH Antagonists in Reproductive Endocrinology", Seminar, Executive Committee on Research, Massachusetts General Hospital
- 1994 "Economic Impact of Multiple Gestation", Seminar, Boston Fertility Society, Boston, MA
- 1994 "GnRH Antagonists in Clinical Investigation", Obstetrics & Gynecology Rounds, Beth Israel Hospital, Boston, MA
- 1994 "Polycystic Ovarian Syndrome: Metabolic Complications", Medical Grand Rounds, Massachusetts General Hospital
- 1995 "New Perspectives in Polycystic Ovarian Syndrome", Endocrine Grand Rounds, Boston City Hospital, Boston, MA
- 1996 "Diagnosis and Treatment of PCOS", Medical Grand Rounds, Mount Auburn Hospital, Cambridge, MA
- 1996 "Treatment of Acquired Hypogonadotropic Hypogonadism", Endocrine Grand Rounds, Boston Children's Hospital, Boston, MA
- 1996 Case Discussion, Medical House Staff Rounds, Massachusetts General Hospital
- 1997 Case Discussion, Medical House Staff Rounds, Massachusetts General Hospital
- 1997 "Polycystic Ovarian Syndrome: Understanding the Pathophysiology", Obstetrics & Gynecology Rounds, Brigham and Women's Hospital, Boston, MA
- 1997 "PCOS: Understanding the Spectrum of the Disorder", Endocrine Grand Rounds, Beth Israel Hospital, Boston, MA
- 1997 "Polycystic Ovarian Syndrome: New Perspectives", Endocrine Grand Rounds, Brigham and Women's Hospital/Children's Hospital, Boston, MA
- 1998 "New Perspectives in the Diagnosis and Management of PCOS", Endocrine Grand Rounds, University of Massachusetts Medical Center, Worcester, MA
- 2000 Case Discussion, Medical House Staff Rounds, Massachusetts General Hospital
- 2000 "Physiology and Pathophysiology of Inhibin in Women", Endocrine Grand Rounds, Boston City Hospital, Boston, MA
- 2000 "Diagnosis and Medical Management of PCOS", Medical Grand Rounds, Falmouth Hospital, Cape Cod, MA
- 2000 "PCOS: What the Internist Should Know", Medical Grand Rounds, Lawrence General Hospital, Lawrence, MA
- 2000 "Physiology of Inhibin in Women", Obstetrics & Gynecology Rounds, Massachusetts General Hospital
- 2002-2009 "Polycystic Ovarian Syndrome: Diagnosis and Management", Seminar, MGH Institute of Health Professions, Boston, MA
- 2001 Keynote Speaker, "Aging of the Reproductive System: A Multifaceted Process", Center of Excellence in Women's Health, Harvard Medical School, Boston, MA
- 2001 "Inhibin in Reproductive Medicine: Physiology and Clinical Applications", Seminar, Boston Fertility Society, Boston, MA
- 2002 "Reproductive Aging in Women", Obstetrics & Gynecology Rounds, Brigham and Women's Hospital, Boston, MA
- 2002 "Aging of the Reproductive System: A Multifaceted Process", Endocrine Grand Rounds, Beth Israel Hospital, Boston, MA
- 2002 Case Discussion, Medical House Staff Rounds, Massachusetts General Hospital
- 2003 Keynote Speaker, "Managing the Perimenopause", Revere Health Center Postgraduate Day, Massachusetts General Hospital

- 2003 "The Relationship of Valproate to PCOS", Endocrine Grand Rounds, Massachusetts General Hospital
- 2003 "Reproductive Aging: Insights into the Brain", Endocrine Grand Rounds, Brigham and Women's Hospital, Boston, MA
- 2003 Career Pathways in Medicine, Panel, Office of Women's Careers Massachusetts General Hospital
- 2003 "Reproductive Endocrinology, Basics and Effects of Aging", Seminar, MGH General Clinical Research Center
- 2003 "Clinical Research in Academic Health Centers/Translational Research", Seminar, MGH Institute of Health Professions, Boston, MA
- 2004 "Aging of the Neuroendocrine System: Insights into the Brain", Rounds, MGH Senior Health Clinic, Massachusetts General Hospital
- 2004 "Understanding Infertility: Choices and Concerns During a Challenging Time", Seminar, Women's Health Coordinating Council, Massachusetts General Hospital
- 2004 MGH Career Planning Session for Medical House Staff, Panel, Massachusetts General Hospital
- 2004 "New Perspectives in PCOS: Implications for Diagnosis and Management" Pediatric Endocrine Rounds, Massachusetts General Hospital
- 2004 "Sleep and Circadian Effects on the Female Reproductive System", Sleep Grand Rounds, Harvard Medical School Division of Sleep Medicine, Boston, MA
- 2005 "The Impact of Infertility on Families: Perspectives from Patient Care and Clinical Research", Schwartz Center Rounds, Massachusetts General Hospital Institute of Health Professions, Boston, MA
- 2005 Building a Research Program, Panel, Clinical Research Program K Club, Massachusetts General Hospital
- 2006 "PCOS: What's in a Definition?", Endocrine Grand Rounds, Massachusetts General Hospital
- 2006 "Understanding the Menopausal Transition: Implications for Management", Medical Grand Rounds, Massachusetts General Hospital
- 2006 "Menstrual Disorders", Medical Grand Rounds, Harvard University Health Services, Cambridge, MA
- 2008 "The Spectrum of PCOS: Diagnosis and Metabolic Issues", MGH Obesity Center Rounds, Massachusetts General Hospital
- 2007 "Postmenopausal Hyperandrogenism", Endocrine Grand Rounds, Massachusetts General Hospital
- 2008 "How to write a grant: who reviews grants and what are they looking for?" Overview and Panel Discussion, Massachusetts General Hospital Postdoc Association and the Office for Research Career Development, Massachusetts General Hospital
- 2008 "The Path to Independence as a Clinical Investigator", Longitudinal Seminar, Scholars in Clinical Science Program, Harvard Medical School, Boston, MA
- 2009– 2014 "Academic Careers in Clinical Translational Research", Partners Health Service Clinical Fellows Retreat. Boston, MA
- 2015 "The Role of Genetics in Expanding the Phenotype of GnRH Deficiency" Endocrine Grand Rounds, NIH, Bethesda, MD
- 2015 "The Neuroendocrine Control of Reproduction: A Model of Translational Research, ESCBL Seminar, NIEHS, Research Triangle Park, NC

2.1 Regional, national, or international contributions

a. Invited Presentations

- 1984 "The Menstrual Cycle and Physical Activity", U.S. Olympic Committee, Colorado Springs, CO
- 1985 "Paradoxical Effects of a GnRH Antagonist", Workshop on LHRH Analogs, Contraceptive Development Branch, NIH, Bethesda, MD
- 1986 "The NAL-ARG GnRH Antagonist: Dose-Response Relationships in Early Follicular Phase Women", Workshop on LHRH Analogs, Contraceptive Development Branch, NIH, Bethesda, MD
- 1986 "Exercise-Related Amenorrhea: Effects of Exercise on the Menstrual Cycle", Medical Grand Rounds, Victoria General Hospital, Vancouver, Canada
- 1986 Lecturer, Sports Medicine Seminar, BC Sport Medicine, Whistler, Canada
- 1986 Lecturer, International Seminar on Sports Medicine, Toronto, Canada
- 1988 "Abnormal GnRH Secretion in Hypothalamic Amenorrhea and the Use of Pulsatile GnRH", Endocrine Grand Rounds, McMaster University Medical School, Hamilton, Canada
- 1988 "New Treatments for Infertility: Pulsatile GnRH in Men and Women", Interview, CNN
- 1988 "Acute Effects of GnRH Receptor Blockade in Normal Women: Studies of the NAL-GLU GnRH Antagonist", Workshop on LHRH Analogs and Reproductive Peptides, Contraceptive Development Branch, NIH, Bethesda, MD
- 1989 "Effect of Blockade of GnRH-Dependent Pituitary Support of the Ovary", Workshop on LHRH Analogs and Reproductive Peptides, Contraceptive Development Branch, NIH, Bethesda, MD
- 1990 "Use of GnRH Antagonists as Physiologic Probes in Women", Modes of Action of GnRH and GnRH Analogues, Scottsdale, AZ
- 1991 "GnRH Antagonists in Women: Physiologic and Clinical Studies", Symposium Presentation, Endocrine Society Annual Meeting, Washington, DC
- 1992 "GnRH Antagonists: What do they teach us about the physiology and pathophysiology in women?", Endocrine Grand Rounds, Yale University School of Medicine, New Haven, CT
- 1992 "Gonadotropin and Androgen Responses to GnRH Antagonists in PCOS", Endocrine Grand Rounds, University of Chicago, Chicago, IL
- 1992 "Diagnosis and Management of PCOS", Endocrine Grand Rounds, University of Massachusetts Medical School, Worcester, MA
- 1992 "Infertility – Pulsatile GnRH", Interview, Lifetime Television
- 1992 "Physiology and Pathophysiology of the Female Reproductive System", NIAAA Symposium on Alcohol and the Endocrine System, San Diego, CA
- 1992 "GnRH Antagonists in Hyperandrogenemia", Workshop on LHRH Analogs and Reproductive Peptides, Contraceptive Development Branch, NIH, Bethesda, MD
- 1992 "Polycystic Ovarian Syndrome", Endocrine Postgraduate Assembly, The Endocrine Society, Boston, MA
- 1993 "Estrogen Replacement Therapy", Meet-the-Professor, The Endocrine Society Annual Meeting, Las Vegas, NV
- 1993 "Kallmann's Syndrome (KS) Past and Present", NIH Conference on Kallmann's Syndrome: A Disorder of Neuronal Migration, Bethesda, MD
- 1993 "GnRH Antagonists: Probes for Understanding the Neuroendocrine Physiology of the Pituitary-Gonadal Axis", Endocrine Grand Rounds, Brown University, Providence, RI
- 1993 "GnRH Antagonists as Physiologic Probes in Women: Studies in PCOS", Endocrine Grand Rounds, Jewish General Hospital, Montreal, Canada
- 1994 "Hirsutism/Virilization Syndromes", Endocrine Postgraduate Assembly, The

- Endocrine Society, Toronto, ON, Canada
- 1994 "Update in Female Reproduction" , Symposium Presentation, Endocrine Society Annual Meeting, Anaheim, CA
- 1994 "The Economic Impact of Multiple Gestation", Interview, USA Today; Boston Globe
- 1994 "Reassessing Amenorrhea-Oligoamenorrhea Syndromes"; "Hyperandrogenic Disorders, PCOS and other Causes of Hirsutism", American Association of Clinical Endocrinologists Annual Meeting, Boston, MA
- 1995 "Multiple Gestation Pregnancies: An Added Complication for the Infertile Couple", NIH Psychobiology of Infertility Conference, Bethesda, MD
- 1996 "Reproductive Technology and Multiple Gestation", Interview, TODAY Show, New York, NY
- 1996 "Polycystic Ovarian Syndrome", Invited Speaker and Meet-The-Professor Session, 22 Congresso Brasileiro de Endocrinologia & Metabologia, Salvador-Bahia, Brazil
- 1996 "Evaluation of Hirsutism and Virilization", Northeast Regional Nurse Practitioner Association, Nashua, NH
- 1996 Mechanisms Underlying the Midcycle Surge in Women", IX World Congress on Human Reproduction, " American Society of Reproductive Medicine, Philadelphia, PA
- 1996 "Amenorrhea", Clinical Endocrinology Update, The Endocrine Society, Chicago, IL
- 1996 "Body Weight and Gonadotropin Secretion in Normal Women and Women with Reproductive Abnormalities", Pennington Nutrition and Reproduction Symposium, Baton Rouge, LA
- 1997 "Amenorrhea", Meet-the-Professor, The Endocrine Society Annual Meeting, Minneapolis, MN
- 1997 "Neuroendocrinology of Puberty and the Normal Menstrual Cycle", Frontiers in Reproductive Endocrinology, Washington, DC
- 1997 "Aging of the Hypothalamic-Pituitary-Ovarian Axis in Women", Symposium Presentation, Endocrine Society Annual Meeting, San Diego, CA
- 1998-2007 "Female Reproduction" Review of Endocrinology Diagnosis and Treatment, NIH, Foundation for Advanced Education in the Sciences, Bethesda, MD
- 1998 "Menstrual Cycle Abnormalities: Diagnosis & Management", Clinical Endocrine Update The Endocrine Society, Boston, MA
- 1998 Minority Student Outreach Program, Clinical Endocrine Update, The Endocrine Society, Boston, MA
- 1998 "Pathophysiology and Management of Hypothalamic Hypogonadism", 41emes Journees Internationales d'Endocrinologie Clinique, Paris, France
- 1998 External Reviewer, Clinical Investigation 1998, General Clinical Research Center, University of Virginia, Charlottesville, VA
- 1999 "Physiology of GnRH Antagonists", Symposium Presentation, American Society of Reproductive Medicine Annual Meeting, Toronto, Canada
- 1999 "Inhibin Physiology in the Female", North American Inhibin & Activin Conference, Evanston, IL
- 1999 "How to Link Basic Science to Clinical Investigation", Introduction to Molecular & Cellular Research, Endocrine Society, San Diego, CA
- 1999 Visiting Professor - "Polycystic Ovarian Syndrome: Implications for the Internist"; "Aging of the Hypothalamic-Pituitary Reproductive Axis in Women", University of Virginia Health Sciences Center, Charlottesville, VA
- 2000 "Continuing Work in the U. S. ", Career Development Workshop for Trainees , Endocrine Society Annual Meeting, Toronto, Canada
- 2000 "The Measurement of Inhibin and Related Peptides in Women: Potential Clinical

- Applications", International Meeting on Inhibins, Activins and Follistatins, Melbourne, Australia
- 2000 "The Role and Control of Inhibin in Women", Endocrine Grand Rounds, Endocrine Division, University of Toronto, Toronto, Canada
- 2000 "Inhibin-Activin Control of Female Reproduction", The Endocrine Basis of Reproductive Function, Tampa, FL
- 2001 "GnRH Antagonists: Potential Benefits in Chemo and Radiation Therapy"
"Application of GnRH Antagonists in the Perimenopause", NIH Conference on Potential Clinical Applications for GnRH Antagonists, Bethesda, MD
- 2001 "Physiology and Clinical Utility of Inhibin in Women", Endocrine Grand Rounds, Beth Israel Hospital, New York
- 2001 Discussant, NIH/ASRM Staging of Reproductive Aging Workshop, Park City, UT, NIH (NIA /NICHHD) and ASRM
- 2001 "How to Write a Successful NIH Grant", Symposium Presentation, North American Menopause Society Annual Meeting, New Orleans, LA
- 2002 "Dilemmas in Managing the Perimenopausal Patient", Clinical Endocrine Update, The Endocrine Society, Miami, FL
- 2003 "Understanding the Menopause: The Key to Patient Management", Medical Grand Rounds, University of Pittsburgh Medical Center, Pittsburgh, PA
- 2004 "Gonadotropin Dysfunction in PCOS: Exploring the Relationship with Weight", Updates in Infertility Treatment, Marco Island, FL
- 2004 "Polycystic Ovary Syndrome: Diagnosis, Implications and Treatment", Northeast Regional Nurse Practitioner Association, Westford, MA
- 2004 "Dynamics of the Female Reproductive System and Changes with Aging", NIH Conference on the Biology of the Perimenopause: Impact on Health and Aging, Bethesda, MD
- 2004 Visiting Professor - "Understanding the Menopause"; "Pulsatile GnRH: 25 years of Experience", University of Montreal, Montreal, Canada
- 2005 "Polycystic Ovarian Syndrome (PCOS) Management: Logic and Strategy", "The Menopausal Transition: Implications for Management", Clinical Endocrine Update, Toronto, ON, Canada
- 2005 "The Perils of Twinning: Economic and Psychosocial Impacts of Multiples", NY Fertility Society, New York, NY
- 2005 "Women in Academic Medicine: Charting Your Own Path", Women Physician Scientist Seminar Series, Office of Academic Career Development, University of Pittsburgh Medical Center, Pittsburgh PA
- 2005 Clinical Endocrine Update, "Perimenopausal Management and Decisions on Testosterone Replacement", The Endocrine Society, Toronto, ON, Canada
- 2005 "Use of the GCRC", Clinical Investigators Workshop for Trainees, The Endocrine Society, Boston, MA
- 2005 "Building a Career in Clinical Investigation", Career Development Workshop, The Endocrine Society Annual Meeting, Boston, MA
- 2005 "The Menopausal Transition: Changing Dynamics of Hypothalamic-Pituitary-Ovarian Feedback", Symposium Presentation, Endocrine Society Annual Meeting, San Diego, CA
- 2005 "Depression, Sleep and Menopause", Endocrine Society Representative to the White Paper Conference on the Menopause sponsored by ASRM, Birmingham, AL.
- 2005, 2006 Discussant, Review of Participant Protocols, Clinical Investigators Workshop for Trainees, The Endocrine Society, Boston, MA
- 2006 "Peer Review of Clinical Research: Is there a problem and how can it be addressed?" FASEB Symposium on "Peer Review: Issues, Mechanisms, and Models",

- Washington, DC.
- 2006 “The Spectrum of Polycystic Ovarian Syndrome: Diagnosis and Management”, Oregon Health Sciences University, Endocrinology Post-Graduate Course, Ashland OR
- 2006 “Selecting a Mentor: What to Look For and Avoid”, Clinical Investigators Workshop for Trainees, The Endocrine Society, Boston, MA
- 2007 “Reproductive Aging in Women”, Keystone Symposium: Reproduction: Advances and Challenges, Santa Fe, NM
- 2007 “The Menopausal Transition: Changing Dynamics of Hypothalamic-Pituitary-Ovarian Feedback”, Food and Drug Administration, CDER Symposium, Washington, DC
- 2007 “Ovarian and Neuroendocrine Mechanisms of Reproductive Aging in Women”, Center for Reproductive Sciences, Northwestern University, Evanston, IL
- 2007 “PCOS and How it Impacts Clinical Management of Infertility Patients”, Organon Experts in Reproductive Medicine Meeting, Miami, FL
- 2007 “Reproductive Aging: Implications for Management of the Menopausal Transition”, Endocrine Grand Rounds, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA
- 2007 “The Menopause: Ovarian and Neuroendocrine Mechanisms”. Endocrine Grand Rounds, Northwestern University Medical School, Chicago, IL.
- 1997 "PCOS: New Insights and their Implications for Clinical Management", Endocrine Grand Rounds, School of Medicine of the University of Connecticut Health Center, Farmington, CT
- 2007 “Diagnosis of PCOS”, Meet-the-Professor, The Endocrine Society Annual Meeting, Toronto, ON, Canada
- 2008 “Career Pathways: Academic Medicine”. Panel, Endocrine Society Trainee Day, San Francisco, CA
- 2008 “PCOS and Hyperandrogenism”. Endocrine Society Trainee Day, San Francisco, CA
- 2008 Kallmann Syndrome Support Group, Massachusetts General Hospital – 22 patients and family members from across the United States and New Zealand, Boston, MA
- 1998 "Menstrual Cycle Dysfunction: Diagnosis & Treatment", Northeast Regional Nurse Practitioner Association, Manchester, NH
- 2009 “Contraception across the Lifespan”, The Endocrine Society Annual Meeting, Washington, DC
- 2009 “The Year in Female Reproduction”, The Endocrine Society Annual Meeting, San Diego, CA
- 2010 “Contribution of Ablation/Replacement Models to Understanding the Neuroendocrine Control of Reproduction in Women”, Division of Reproductive Medicine, Department of Obstetrics/Gynaecology, Vrije Universiteit Medical Center, Amsterdam, NL
- 2010 Keynote Speaker - "Insights into the Central Control of Reproduction", The Dutch Endocrine Society Meeting, Noordelijkerhout, NL
- 2011 “Hypothalamic Amenorrhea: a Pathophysiology in Evolution”, Jody Ginsberg Symposium, Canadian Society of Endocrinology & Metabolism/Canadian Diabetes Association Annual Meeting, Toronto, Canada
- 2011 Keynote Speaker - “Personal Reflections: Your Career in Endocrinology” 5th Annual Canadian Endocrine Residents’ Review Course & Residents’ Council Meeting, Toronto, Canada
- 2012 Visiting Professor - “Estrogen Effects on the Brain: Neuroendocrine Effects and Beyond”; Medical Grand Rounds M “GnRH Deficiency in Women: an Evolving Story”. University of Denver Medical Center, Aurora, CO

- 2012 Buerki Visiting Professor, Medical Grand Rounds “Genes and Reproduction: an Evolving Story”; Endocrine Seminar “Estrogen and the Brain: Neuroendocrine Effects and Beyond”; Henry Ford Hospital, Detroit MI,
- 2014 “GnRH Antagonists: Models for Clinical Investigation”, Guillenim 90th Birthday Symposium – Hypothalamic Factors: A Trove for Novel Therapeutic and Diagnostic Applications, The Salk Institute, La Jolla, CA
- 2014- “Clinical Models in Reproductive Endocrine Research I – Insights into the Central Control of Reproduction” and “Clinical Models in Reproductive Endocrine Research II – Estrogen and the Brain: Neuroendocrine Effects and Beyond”. Frontiers in Reproduction, Woods Hole, MA
- 2014 “Effects of Estrogen and Aging on the Brain”, Triangle Consortium of Reproductive Biology, Research Triangle Park, NC
- 2015 “Effects of Age and Estrogen on Cognitive Processing in Postmenopausal Women”, Oral Presentation, The Endocrine Society Annual Meeting, San Diego, CA
- 2015 Keynote Speaker - “Women in Endocrinology at 40!”, Women in Endocrinology Annual Meeting, San Diego, CA
- 2015 “Big Lessons from Rare Diseases: GnRH Deficiency”, Pediatric/Adult Endocrine Rounds, University of North Carolina, Chapel Hill, NC
- 2015 “Female Reproduction”, ENDO EGYPT 2016, Luxor, Egypt

b. Professional Leadership Roles

- 1993 National Institute of Health
Co-Chairperson, NIH Conference "Kallmann's Syndrome: A Disorder of Neuronal Migration", Bethesda, MD
- 1994 Endocrine Society
Chair, Reproductive Endocrine Section, Endocrine Postgraduate Assembly, Toronto, ON, Canada
- 1995 National Institutes of Child Health and Disease, NIH Co-Chair, NIH Conference "Psychobiology of Infertility", Bethesda, MD
- 1998 Endocrine Society
Chair, Reproductive Endocrine Section, Clinical Endocrine Update, Boston, MA
- 1999-2001 Endocrine Society/Up-to-Date
Section Editor, Endocrine Self Assessment Program, Endocrine Society/Up-to-Date
- 2000 Association of Program Directors in Endocrinology & Metabolism
Chair, Reproductive Endocrine Section, Curriculum Development Committee
- 2003 Endocrine Society
Chair, Reproductive Endocrine Section, Clinical Endocrine Update, Miami, FL
- 2003-2006 Endocrine Society
Vice President, Clinical Science
- 2004 Ferring Symposia
Scientific Program Committee, Updates in Infertility Treatment, Marco Island, CA
- 2005 Endocrine Society
Chair, Reproductive Endocrine Section, Clinical Endocrine Update, Toronto, ON, Canada
- 2005 Endocrine Society
Co-Director, Clinical Investigators Workshop for Trainees, Boston, MA
- 2006 Endocrine Society
Team Leader, Reproductive Section, 2008 Annual Meeting Steering Committee, Boston, MA

2006 Endocrine Society
Chair, Clinical Scientist Taskforce

2006-2008 Women in Endocrinology
President

2007 Endocrine Society
Team Leader, Reproductive Section, 2007 Annual Meeting Steering Committee,
Toronto, ON, Canada

2007-2008 Endocrine Society
Co-Chair, Bridge Grant Program

2008 Endocrine Society
Team Leader, Reproductive Section, 2007 Annual Meeting Steering Committee, San
Francisco, CA

2010 Endocrine Society
President Elect

2010-2011 Endocrine Society, Strategic Planning Committee

2010-2013 Endocrine Society, Executive Committee

2010-2013 Endocrine Society, Performance and Compensation Steering
Committee

2011 STRAW+10 Symposium and Workshop
Planning
Committee and Moderator, Washington, DC

2011 Endocrine Society
President

2012 Endocrine Society
Immediate Past President

2014 Endocrine Society
Sex Steroid Assays Reporting Task Force

3. Description of Teaching Award(s) Received

2000 A. Clifford Barger Excellence in Mentoring Award
Harvard Medical School

2005 Partners in Excellence Award for Development and Directing, Design and Conduct of
Clinical Trials Course, Massachusetts General Hospital

E. Report of Clinical Activities

1989-2014 Endocrinology, Reproductive Endocrinology Massachusetts General Hospital
Clinical Activity Description: Clinical practice conducted in the Reproductive Endocrine Associates
group practice, seeing Endocrinology patients with a particular focus on Reproductive
Endocrinology--including menstrual cycle abnormalities, male and female infertility, hirsutism and
management of the perimenopause and menopause. Inpatient admissions related primarily to clinical
research activities. As the majority of patients were secondary or tertiary referrals, the complexity of
management was generally high. Approximately 50 inpatient admissions per year for complex
clinical investigative protocols.

Patient Load: 350/year

Clinical Contributions: Dr. Hall's studies on the use of pulsatile GnRH have defined the appropriate
patient populations for its use and have pointed out the low risk of multiple gestation with this form
of ovulation induction. Studies on the economic impact of multiple gestation highlighted the
importance of this common side effect and have influenced the establishment of national guidelines
for the number of embryos transferred during in vitro fertilization. Studies of the psychosocial

implications of multiples have revealed areas of vulnerability that can be addressed through specific counseling and support services.

Other Relevant Information: Recognition as a leader in the field through:

1. Invitations to teach in local and national Continuing Medical Education courses;
2. Meet-the-Professor Sessions for the Endocrine Society Annual Meeting;
3. Reproductive Endocrine Editor of the Endocrine Society Self-Evaluation Program;
4. Chair of the Reproductive Endocrine Section of Clinical Endocrine Update, the Endocrine Society's National Postgraduate Course on four separate occasions;
5. Chair of the Reproductive Endocrine Section of the Curriculum Development Committee for the Association of Program Directors in Endocrinology and Metabolism;
6. Editor - Journal of Clinical Endocrinology & Metabolism 2000-2004 and 2010-2015
7. Section Editor - Current Opinion in Endocrinology & Diabetes 2000-2002
8. Included in Best Doctors in America 1998-present.
9. Contributions to leading on-line and print textbooks of Internal Medicine (Harrison's, ACP Medicine), Endocrinology and Reproductive Endocrinology.

Part III: Bibliography

Original Articles

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/49577470/?sort=date&direction=ascending>

1. **Jurkowski [Hall] JE**, Jones NL, Walker WC, Younglai EV, Sutton JR. Ovarian hormonal responses to exercise. *J Appl Physiol: Respirat Environ Exercise Physiol.* 1978;44:109-114.
2. Jones NL, Jurkowski [Hall] JE. Body carbon dioxide storage capacity in exercise. *J Appl Physiol: Respirat Environ Exercise Physiol.* 1979;46:811-815.
3. **Hall Jurkowski JE**, Jones NL, Toews CJ, Sutton JR. Effects of menstrual cycle on blood lactate, O₂ delivery and performance during exercise. *J Appl Physiol: Respirat Environ Exercise Physiol.* 1981;51:1493-1499.
4. Waldstreicher J, Santoro NF, **Hall JE**, Filicori M, Crowley WF. Hyperfunction of the hypothalamic-pituitary axis in women with polycystic ovarian disease: indirect evidence for partial gonadotroph desensitization. *J Clin Endocrinol Metab.* 1988;66(1):165-72.
5. **Hall JE**, Brodie TD, Badger TM, Rivier J, Vale W, Conn PM, Schoenfeld D, Crowley WF. Evidence of differential control of FSH and LH secretion by gonadotropin-releasing hormone (GnRH) from the use of a GnRH antagonist. *J Clin Endocrinol Metab.* 1988;67(3):524-31.
6. Hopkins CC, **Hall JE**, Santoro NF, Martin KA, Filicori M, Crowley WF. Closed intravenous administration of gonadotropin-releasing hormone: safety of extended peripheral intravenous catheterization. *Obstet Gynecol.* 1989;74(2):267-70.
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