

Elizabeth AnNella Stewart, MD, FACOG

PART I: General Information

Name: Elizabeth AnNella Stewart, M.D.

Business Address: Center for Uterine Fibroids
Department of Obstetrics and Gynecology
Brigham and Women's Hospital
75 Francis Street, Boston, MA 02115
Telephone: (617) 732-4285

E-Mail Address: eastewart@partners.org

Fax: (617) 975-0870

Education:

1980 B.A. Vanderbilt University, (Molecular Biology) magna cum laude
1985 M.D. Harvard Medical School

Postdoctoral Training:

Internship and Residency:

1985-1986 Intern in Obstetrics and Gynecology, Magee-Women's Hospital, University of Pittsburgh, Pittsburgh
1986-1989 Resident in Obstetrics and Gynecology, Brigham and Women's Hospital/Massachusetts General Hospital, Harvard Medical School, Boston

Fellowship:

1990-1992 Fellow in Reproductive Endocrinology, Brigham and Women's Hospital, Boston

Licensure and Certification:

1986 National Board of Medical Examiners Certification
1988- Massachusetts License Registration
1993 American Board of Obstetrics and Gynecology
1995 American Board of Obstetrics and Gynecology, Division of Reproductive Endocrinology
2003 American Board of Obstetrics and Gynecology, Annual Recertification

Academic Appointments:

1986-1989 Clinical Fellow in Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School
1989-1995 Instructor in Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School
1995-2003 Assistant Professor of Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School
2003 Associate Professor of Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School

Hospital Appointments:

- 1989- Associate Obstetrician and Gynecologist, Brigham and Women's Hospital, Boston
- 1989-1990 Assistant Gynecologist, Massachusetts General Hospital, Boston
- 1989-1990 Associate in Obstetrics and Gynecology, MIT Medical Department, Massachusetts Institute of Technology, Cambridge
- 1998- Clinical Director, Center for Uterine Fibroids, Brigham and Women's Hospital
- 2005- Associate Gynecologist, Faulkner Hospital, Boston

Other Professional Positions and Major Visiting Appointments:

- 1981 Research Assistant, Department of Surgery, Vanderbilt University School of Medicine
- 1982 Summer Fellow, Diabetes Center, Vanderbilt University School of Medicine
- 1984 Clinical Associate, National Institutes of Health (NIH), Clinical Elective in Endocrinology and Metabolism
- 2000 Consultant, Reproductive Sciences Program, University of Michigan
- 2000 Visiting Professor of Obstetrics and Gynecology, Kuwait University, Kuwait
- 2000 Consultant for Women's Health Care, Emirates Palomar Medical Technology Services, Abu Dhabi, United Arab Emirates
- 2005 Ad hoc member of Board of Scientific Counselors, Review of Epidemiology Branch, National Institute of Environmental Health Sciences, National Institutes of Health

Hospital Service Responsibilities:

- 1990- Attending Physician, Obstetrics and Gynecology Services, Brigham and Women's Hospital
- 1991- Member, Infertility, Reproductive Endocrine and Menopause Unit, Brigham and Women's Hospital
- 1995-1999 Associate Director, Laboratory of Cell Biology, Department of Obstetrics, Gynecology and Reproductive Biology, Brigham and Women's Hospital, Harvard Medical School

Major Administrative Responsibilities:

- 2002-2004 Associate Director, Reproductive Endocrinology Fellowship Program, Brigham and Women's Hospital

Major Committee Assignments:

- 1993-1995 Medical Director, Quality Assurance Committee, Fertility and Endocrinology Unit, Brigham and Women's Hospital, Boston

Professional Societies:

- 1988-1994 The American College of Obstetricians and Gynecologists (Junior Fellow)
- 1995- The American College of Obstetricians and Gynecologists (Fellow)
- 1988-1992 American Fertility Society (Associate Member)
- 1992-1994 American Fertility Society (Member)
- 1995- American Society for Reproductive Medicine (Member)
- 1990-1995 The Society of Reproductive Endocrinologists (Associate Member)

- 1993-2001 Boston Fertility Society
- 1995- The Society of Reproductive Endocrinologists (Member)
- 1996-2001 The Endocrine Society
- 1996-1999 The Society for Gynecologic Investigation (Associate Member)
- 1999- The Society for Gynecologic Investigation (Member)

Educational and Advisory Boards:

- 2001 Berlex Foundation Trustee
- 2004 Cytoc Clinical Technologies Advisory Board
- 2004- International Board, New European Surgical Academy
- 2005- Society for Interventional Radiology, Research Consensus Panel for uterine artery embolization
- 2004 Regional Training Site for Smith and Nephew Operative Hysteroscopy

Awards and Honors:

- 1980 Mortar Board Honorary Society
- 1980 Phi Beta Kappa
- 1991 First Prize, Boston Fertility Society Prize Paper Competition
- 1993 Berlex Scholar Award
- 1994 First Prize, Boston Obstetrical Society Prize Paper Competition
- 1996 Second Prize, Boston Fertility Society Prize Paper Competition (Co-author)
- 1996 Partners in Excellence Award, Partners HealthCare System
- 2000 Bear and Eagle Feather Mentoring Award, Four Directions Summer Research Program, Harvard Medical School
- 2000 Partners in Excellence Award, Partner's Health Care System
- 2000 U.S. Patent 6440445: Methods and Compounds for Treatment of Abnormal Uterine Bleeding (Co-inventor).
- 2004 Residency Teaching Award in Reproductive Endocrinology, Brigham and Women's Hospital
- 2004 Leadership Award for Clinical Innovation, Brigham and Women's Physician's Organization

Part II: Research, Teaching and Clinical Contributions

A. Funding Information

1992	NIH RO1 HD30496	Co-Inv	Extracellular Matrix Production by Uterine Fibroids (Romana A. Nowak, PI)
1992	The Berlex Foundation: Berlex Scholar Award	PI	Direct effects of gonadotropins and their common α -subunit on leiomyomas and myometrium
1996	William F. Milton Fund	PI	Cloning a Human Alpha-Subunit Receptor Gene
1997-2002	NIH K08-HD0115301	PI	Molecular Endocrinology of the Human Uterus
1997	Clinical Trial – Marnac Inc.	PI	Pirfenidone for Treatment of Uterine Leiomyomas
1999	Clinical Trial – Balance Pharmaceuticals	PI	Dose range Finding and Efficacy Study of Estradiol Administered with Deslorelin in Premenopausal Women
1999	Clinical Trial – Ortho Biotech Inc.	PI	A Prospective, Randomized, Double-Blind, Placebo-Controlled Study Comparing the Perioperative Administration of Procrit® (Epoetin alfa) with Iron Supplementation in Patients Undergoing Hysterectomy for Benign Gynecologic Disease
2000	Clinical Trial – TxSonics, Inc.	PI	MR-Guided Focused Ultrasound Surgery of Symptomatic Uterine Leiomyomas (Fibroids)
2001	Clinical Trial – InSightec, Ltd.	PI	Continued Access Protocol – MR-Guided Focused Ultrasound Surgery for Symptomatic Uterine Leiomyomas
2001	Clinical Trial – Boston Scientific	PI	Contour Emboli PVA and Fas Tracker – 325 Infusion Catheter for use in Uterine Artery Embolization for the management of Uterine Fibroids
2002	Clinical Trial – InSightec, Ltd	PI	Multicenter Phase III Controlled Trial of MR-Guided Focused Ultrasound Surgery for Symptomatic Uterine Leiomyomas compared to Hysterectomy
2003-	Clinical Trial – InSightec, Ltd.	PI	Continued Access Protocol- MR-Guided Focused Ultrasound Surgery for Symptomatic Uterine Leiomyomas
2003-	NIH – R01 HD046226	Co-Inv	Finding Genes for Uterine Fibroids (Cynthia C. Morton, PI)

B. Report of Current Research Activities

Focused ultrasound for the treatment of Uterine fibroids	Investigator
Genetics of uterine fibroids	Co-Investigator
Genotype/phenotype relationships for uterine fibroids	Investigator
Predictors of recurrence of uterine fibroids	Mentor for fellow project

C. Report of Teaching

1. Local Contributions

a. Harvard Medical School

1992-1996

HMS II Reproductive and Renal Pathophysiology

- Teaching for Multicenter Exercise: 25 students, 3 hours/year (92-93)
- Lecturer: 165 students, 10 hours/year (95-96)
- Tutorial Leader: 12 students, 50 hours/year (95)

1997

HMS IV Advanced Basic Science in Reproductive Medicine

- Tutorial Leader: 10 students, 10 hours/year

1999, 2003, 2005

HSPH Epidemiological Research in Obstetrics and Gynecology

- Lecturer: 12 students, 5 hours/year

2003-2004

PASTEUR (Patient-Associated Science: Training, Education, Understanding and Research)

- Lecturer "Uterine Fibroids: Developing Non-Invasive Treatments for Non-Fatal Diseases."
20 Students, 5 hours/year

b. Harvard Medical School- Graduate Medical Education

1990-2005

Brigham and Women's Hospital Fertility and Reproductive Endocrinology Unit

- Seminar Leader: 6 fellows, 1 resident, 2 students, 24 hours/year (90-92)
- Inpatient Service Attending: 6 fellows, 1 resident, 2 students, 30 hours/year (93-04)
- Medical Student Lecture Series: 20 students, 10 hours/year (93-94)
- Fellowship Lecture Series: 6 fellows, 2 residents, 2 students, 5 hours/year (93,94,96-04)
- Molecular Endocrinology Discussion Series Leader: 5 fellows, 30 hours/year (03-04)

1992-2005

Brigham and Women's Hospital Gynecology Ward Service

-Ward Attending: 8 residents, 3 students, 50 hours/year

1997

Brigham and Women's Hospital Primary Care Residency Program

-Lecturer: 3 hours/year

c. Local Invited Presentations

1994 Grand Rounds, Brigham and Women's Hospital. "New Insights into the Basic Biology of Uterine Leiomyomas."

1994 Reproductive Biology Seminar Series, Laboratory of Human Reproduction and Reproductive Biology "The Effects of Gonadotropins on Myometrium and Leiomyomas."

1996 Grand Rounds, Brigham and Women's Hospital. "Human Chorionic Gonadotropin: Beyond the Beta".

1997 Grand Rounds, Brigham and Women's Hospital. "New insights into leiomyoma treatments"

1999 Grand Rounds, Brigham and Women's Hospital. "The future of treatments for uterine leiomyomas: Will genetic studies impact therapies?" (with Cynthia C. Morton, Ph.D.)

2001 Evening Seminar, Brigham and Women's Hospital "Uterine Fibroids" (with Julie Minor, M.D.) 2001

2002 Grand Rounds, Brigham and Women's Hospital. "MRI-guided Focused Ultrasound Surgery for Uterine Fibroids."

2003 Fertility and Endocrinology Seminar, Brigham and Women's Hospital. "MRI-guided Focused Ultrasound: The Newest Thermoablative Therapy for Uterine Fibroids."

2004 Grand Rounds, Brigham and Women's Hospital. "An Update on MRgFUS for Uterine Fibroids."

2004 Vexing Clinical Issues in Women's Health, Harvard Medical School's Center of Excellence in Women's Health. "Uterine Fibroid" (with Yvonne Gomez-Carrion, M.D.).

2005 Grand Rounds, Massachusetts General Hospital. "The Genetics of Uterine Leiomyomas: The Present and Future."

2005 Women's Health Legislator's Day, Brigham and Women's Hospital. "Uterine Fibroids."

d. Continuing Medical Education

1995-2005

Reproductive Endocrinology Post Graduate Course, Harvard Medical School.

-Lecturer: 3 hours/year (95-2000)

-Workshop Leader: 5 hours/year (96,97,2000-2005)

1996

Office Practice of Primary Care Postgraduate Course, Harvard Medical School.

-Lecturer: 3 hours/year

2003

Women's Health Forum, 2003, Brigham and Women's Hospital.

-Lecture: "Less Invasive Therapies for Uterine Fibroids" with Richard Baum, M.D.

2003

Primed Review Course.

-Lectures: "Uterine Fibroids: A Common Gynecologic Problem," and "New Approaches to Uterine Fibroids."

e. Advisory and Supervisory Roles

1994 Resident Elective in Laboratory Research Douglas Austin, M.D. - 6 week rotation, "The Effects of Onapristone on Prolactin Production by Leiomyomas and Myometrium."

1995 Undergraduate Research Mentor Kelly Udoji (Class of 1997, Massachusetts Institute of Technology (MIT Mentor: Philip Sharp, funding through Weinberg Family Foundation).

1999-2000 Fellowship Research Project, Anthony, Propst M.D. "The FSH receptor in human uterine tissue" and "Angiogenic factors in adenomyosis".

f. Leadership Roles in Teaching

1994-1995 Co-Director, Reproductive Pathophysiology, Human Systems II, Harvard Medical School, Organization of course structure, lecture planning for entire second year course, 165 medical students, 150 hours/year

1996 Director, Reproductive Pathophysiology, Human Systems II, Harvard Medical School, Organization of course structure, lecture planning for entire second year course, 165 medical students, 150 hours/year

1997-2003 Mentor, Four Directions Summer Research Program, Native American Health Organization, Harvard Medical School, 1 student, 1 year, 120 hours/year

2. Regional, National, and International Invited Presentations:

1991 Seminar, University of Vermont, Burlington, "Effects of Gonadotropins on Fibroids and Myometrium."

- 1991 Reproductive Medicine Seminar, University of California, San Diego, "Effect of Gonadotropins on Prolactin Secretion by Fibroids and Myometrium."
- 1993 Invited speaker; Planned Parenthood Lecture, Boston, "RU486 Today."
- 1994 Grand Rounds, Monadnock Community Hospital, Peterborough, New Hampshire, "Medical Treatment of Uterine Leiomyomas."
- 1994 Grand Rounds, Sturdy Memorial Hospital, Attleboro, Massachusetts "Evaluation and Treatment of Abnormal Uterine Bleeding."
- 1994 Participation, AGOS/Berlex Fellows Summer Retreat, Taos, New Mexico.
- 1995 Participation, 7th Annual NICHD Aspen Conference on Maternal-Fetal-Neonatal-Reproductive Medicine.
- 1995 Grand Rounds, Franklin Medical Center, Greenfield, Massachusetts "RU486 Past and Future."
- 1995 Grand Rounds, Newton-Wellesley Hospital, Newton, Massachusetts "RU486 Past and Future."
- 1996 Tufts Health Plan Speaker, Monsignor Ryan Memorial High School, Boston, MA, "Normal Adolescent Development."
- 1996 Third Annual Northeastern Nurse Practitioner Conference, Dartmouth-Hitchcock Medical Center, "Update on Assisted Reproductive Technology."
- 1996 Endometriosis Association Lecture, Boston, Massachusetts "Endometriosis-More Questions than Answers"
- 1997 Roundtable Luncheon Discussant, American Society for Reproductive Medicine "Abnormal Uterine Bleeding" Cincinnati, Ohio
- 1997 Grand Rounds, Winchester Hospital, Winchester, Massachusetts "Endometriosis-New Treatment Options"
- 1998 Invited Speaker, Resolve of the Bay State, "Early Infertility Treatment: Diagnosis Through IVF"

- 1998 Invited Speaker, Biogen Inc., Cambridge, Massachusetts “Biologic Mechanisms of Abnormal Uterine Bleeding”
- 1998 University of Vermont; Reproductive Endocrinology Seminar: “Gonadotropins and the uterus: molecular mechanisms,” Grand Rounds: “New concepts for leiomyomas”
- 1998 Roundtable Luncheon Discussant, American Society for Reproductive Medicine. “Molecular Biology: What the Clinician Needs to Know.”
- 1998 Postgraduate Course Faculty. “Immunologic Cytokine/Growth Factors in Dysfunctional Uterine Bleeding, Fibroids and Adenomyosis” in Reproductive Immunology, American Society for Reproductive Medicine.
- 1999 Grand Rounds, Deaconess-Waltham Hospital, “New Concepts in the Treatment of Uterine Leiomyomas.”
- 1999 Roundtable Luncheon Discussant, American Society for Reproductive Medicine and Canadian Fertility Society, New Concepts for Leiomyomas.”
- 1999 Featured Speaker. National Council of Negro Women, Women’s Health 2000. “Uterine Fibroids” Newark, NJ.
- 1999 Knapp Lecture in Gynecology. “Uterine fibroids: Facts, Fiction, and the Future” (with Cynthia C. Morton, Ph.D.)
- 2000 Visiting Professor, Kuwait University, Kuwait. “Uterine Leiomyomas 2000”, “Finding Genes for Fibroids”, “New Concepts in the Treatment of Uterine Leiomyomas”, and “Medical Treatment for Uterine Fibroids.”
- 2000 Grand Rounds, University of Michigan. “New Concepts for Uterine Leiomyomas” Ann Arbor, Michigan.
- 2000 Reproductive Sciences Program Seminar, University of Michigan. “Finding Genes for Fibroids” Ann Arbor, Michigan.
- 2000 Primary Care Seminar, University of Massachusetts. “Abnormal Uterine Bleeding” Worcester, Massachusetts.
- 2000 Academic Ziekenhuis Maastricht traveling seminar. “Uterine fibroids”, Boston, Massachusetts.
- 2000 “Infertility, Endometriosis and Uterine Fibroids.” Women’s Health Forum 2000: Mothers, Daughters, Sisters, Friends. Boston, Massachusetts.
- 2000 “New Treatments for Uterine Fibroids”, Berlex Foundation Symposium, Short Hill, New Jersey.

- 2000 Update 2001 in Obstetrics and Gynecology, University of Missouri – Kansas City and Truman Medical Center. “Beyond Estrogen : New Concepts in the Biology of Uterine Myomas.” “Medical Therapy of Uterine Leiomyomas.” “Minimally Invasive Alternatives to Hysterectomy” Kansas City, Missouri
- 2000 Consultant, Reproductive Sciences Program, University of Michigan
- 2000 Peer-Review Panel, Management of Uterine Fibroids, Agency for Healthcare Research and Quality
- 2000 Symposium Organizer, “Innovative Treatment for Uterine Fibroids”, American Society for Reproductive Medicine
- 2001 ACOG – Massachusetts Section and Massachusetts Medical Society. Issues in the Treatment of Women. “Current Approaches for the Management of Uterine Leiomyomas” Burlington, Massachusetts.
- 2001 Grand Rounds, St. Elizabeth Hospital, New England Medical Center. “What’s New in the treatment of Uterine Leiomyomas” Brighton, Massachusetts.
- 2001 East Virginia Medical School, “New Concepts in the Treatment of Uterine Fibroids” Norfolk, Virginia.
- 2001 American Society for Reproductive Medicine, Orlando, Florida. Symposium on Innovative Therapies for Uterine Fibroids, 2001 “Innovative Medical Treatment for Uterine Leiomyomas” and “Uterine Artery Embolization.”
- 2002 American Institute for Ultrasound in Medicine Categorical Course, Nashville, Tennessee. “Therapeutic Focused Ultrasound (FUS) and Fibroids: An Answer for Uterine Artery Embolization?”
- 2002 Northeastern Regional Conference of Nurse Practitioners. Manchester, New Hampshire. Serono Symposium/Boston Fertility Society Conference, Danvers, Massachusetts: “Update on Uterine Fibroids: 2002”
- 2002 Serono Symposium/Boston Fertility Society Conference, Danvers, Massachusetts. Opening Lecture “Uterine Fibroids: Issues for Fertility and Pregnancy.”
- 2002 International Society for Magnetic Resonance in Medicine, Workshop on MRI-Guided Focused Ultrasound Surgery, Cambridge, Massachusetts. Moderator for Clinical Studies Symposium.
- 2002 American Society for Reproductive Medicine Postgraduate Course Faculty: Uterine Fibroids, Seattle, Washington. “Traditional and Innovative Manipulation of Gonadal Steroids: Medical Treatment of Uterine Leiomyomas,” “Clinical and Molecular Genetics of Uterine Leiomyomas,” “Novel Therapeutic Approaches to Uterine Leiomyomas.”
- 2003 International Society of Ultrasound in Obstetrics and Gynecology Invited Speaker, New York, New York. “MR-Guided Focused Ultrasound Treatment of Uterine Fibroids.”
- 2003 Albert Einstein School of Medicine, Ob Gyn Grand Rounds, Bronx, New York. “Novel Therapeutic Approaches to Uterine Leiomyomas.”

- 2003 University of Maryland, Radiology Grand Rounds, Baltimore, Maryland. “MR- Guided Focused Ultrasound Surgery for Uterine Fibroids.”
- 2003 University of Indiana, Endocrinology Grand Rounds, Indianapolis, Indiana. “Updating the Endocrinology of Uterine Leiomyomas.”
- 2003 National Institute of Environmental Health Sciences, NIH. Invited Speaker, Workshop for North Carolina Early Pregnancy Study. Research Triangle Park, North Carolina. “Human Chorionic Gonadotropin.”
- 2003 Boston Medical Center Grand Rounds, Boston, Massachusetts. “New Therapies for Uterine Fibroids.”
- 2004 Semmelweis—Waters Obstetrical and Gynecologic Conference, University of Medicine and Dentistry of New Jersey. “High Frequency Focused Ultrasound for Uterine Fibroids.”
- 2004 FDA Medical Devices Advisory Committee, Obstetrics and Gynecology Devices Panel, June 3, 2004. Gaithersburg, Maryland, primary speaker for sponsor, ExAblate 2000 system for treatment of symptomatic uterine fibroids.
- 2004 20th Annual Berkshire Medical Conference. Invited Speaker, Hot Topics in Primary Care, Hancock, Massachusetts. “Non-Invasive Treatment of Uterine Fibroids.”
- 2004 Virtura Health Systems, Cherry Hill, New Jersey. “MRI-guided Focused Ultrasound: The Newest Thermoablative Therapy for Fibroids.”
- 2004 University of Massachusetts Medical Center, Worcester, Massachusetts. “MRI-guided Focused Ultrasound: The Newest Thermoablative Therapy for Fibroids.”
- 2004 St. Elizabeth’s Medical Center, Brighton Massachusetts. “The Genetics of Leiomyomas: What Clinicians’ Need To Know.”
- 2005 Obstetrical and Gynecological Assembly of Southern California Invited Guest Lecturer, Los Angeles, California, “MRI-Guided Focused Ultrasound for Uterine Fibroids,” and “Genetics off Uterine Leiomyomas: The Present and Our Future.”
- 2005 Schering, AG Inc. Berlin, Germany. Invited speaker. “Uterine Fibroids.”

- 2005 Advances in Uterine Leiomyoma Research: 2nd NIH International Congress. Invited speaker, Bethesda, Maryland. “Translational Frontiers: Innovation in Fibroid Treatment in the 21st Century.”
- 2005 International Conference on Menstrual Disorders: Nomenclature and Classification, Invited participant, Tyson’s Corner, Virginia.
- 2005 Medical University of South Carolina. Grand Rounds. Charlestown, South Carolina. “Fibroid Genetics for Clinicians.”
- 2005 Research Consensus Panel for Uterine Artery Embolization, Society for Interventional Radiology Foundation. New Orleans, Louisiana. “Impact of Fibroids on Fertility,” and expert panel member.
- 2005 St. Barnabas Medical Center, Livingston, NJ. “MRI-guided focused ultrasound treatment of uterine fibroids.”
- 2005 ACOG Annual Meeting “Clinical Seminar: Uterine Fibroids” (with V. Fujimoto MD)
- 2005 University of Rochester research seminar. “The Genetics of Uterine Fibroids: Present and Future Implications.”
- 2005 Israel Society of Obstetrics and Gynecology, Jerusalem, Israel. Invited Speaker. “Uterine Fibroids: The Future.”
- 2005 Israel Association for the Advancement of Women’s Health, Tel Aviv, Israel. Invited Speaker. Women and the Womb Forum, “Uterine Fibroids”.
- 2005 Columbia Presbyterian Hospital Grand Rounds, New York, NY. “MRI-guided focused ultrasound surgery.”
- 2005 15th World Congress on Ultrasound in Obstetrics and Gynecology, Vancouver, British Columbia. “MRgFUS: Fibroids and Beyond” (Plenary Talk), “Uterine fibroids: Beyond diagnosis toward prognosis”.

3. Description of Teaching Awards

- 2000 Bear and Eagle Feather Mentoring Award Four Directions Summer Research Program, Harvard Medical School
- 2004 Faculty Teaching Award in Reproductive Endocrinology, Brigham and Women’s Hospital

4. Description of Major Curriculum Offerings

- 1996 Tutorial Author, “Designing the Future”, tutorial on steroid hormones, steroid antagonists, breast and endometrial cancer for HMS II Reproductive Pathophysiology.

D. Report of Clinical Activities

1. Clinical Practice:

Clinical Director for the Center for Uterine Fibroids
Part of the Center for Reproductive Medicine, a Hospital-based practice staffed by board-certified Reproductive Endocrinologists
Specialty area: Standard and innovative options for uterine fibroids, diagnosis and treatment for abnormal uterine bleeding, alternatives to hysterectomy

2. Patient load:

1200 ambulatory visits/year.

125 major surgical cases/year: Chiefly, abdominal myomectomy, hysteroscopic myomectomy and hysterectomy

Both national and international referral base:

Patients referred from New Hampshire, Maine, Vermont, Rhode Island, New York, New Jersey, Connecticut, District of Columbia, Maryland, North Carolina, South Carolina, Florida, Washington, Ohio, Missouri, Michigan, California, Hawaii, Bermuda, Spain, Great Britain, Kuwait, United Arab Emirates, Saudi Arabia

3. Clinical contribution

First Interdisciplinary Center for Uterine Fibroid Treatment

Lead investigator of multi-center trial of MRI-guided focused ultrasound leading to FDA-approval of the ExAblate 2000 device.

4. Recognition of Excellence in Fibroid Care and Research

- 1999 Featured Speaker, National Council of Negro Women
- 1999 Knapp Lecture in Gynecology (with C.C. Morton, Ph.D.)
- 1999 Visiting Professor, Kuwait University Postgraduate Course on Fibroids
- 2000 American Society for Reproductive Medicine, Symposium Organizer and Key Speaker, "Innovative Treatments for Uterine Fibroids"
- 2001 Agency for Healthcare Research and Quality, Peer Review Panel for Fibroid report
- 2001 American Society for Reproductive Medicine, Postgraduate course faculty for Uterine Fibroids Postgraduate Course
- 2002 International Society of Ultrasound in Obstetrics and Gynecology, Invited Speaker.
- 2002 US Patent No. 6440445, Methods and Compounds for Treatment of Abnormal Uterine Bleeding
- 2003-2005 Consultant to Smith & Nephew Endoscopy regarding design of hysteroscopic resection equipment.
- 2004 Leadership Award for Clinical Innovation, Brigham and Women's Physician's Organization
- 2005 Obstetrical and Gynecological Assembly of Southern California Invited Guest Lecturer
- 2005 Advances in Uterine Leiomyoma Research: 2nd NIH International Congress. Invited speaker.
- 2005 International Conference on Menstrual Disorders, Nomenclature and Classification, Invited participant.
- 2005 Research Consensus Panel for Uterine Artery Embolization, SIR Foundation. Expert Panel Member.
- 2005 Ad hoc member of NIEHS Epidemiology Branch review, NIH.
- 2005 Uterine Fibroid, Clinical Symposium. Organizer and speaker, ACOG Annual Meeting.
- 2005 Plenary Session Speaker, 15th World Congress on Ultrasound in Obstetrics and Gynecology.

III. Bibliography:

A. Original Reports:

1. Friedman AJ, Haas S, Kredentser J, **Stewart EA**, Schiff I. A controlled trial of intrauterine insemination for cervical factor and male factor: A preliminary report. *Int J Fertil* 1989;34(3):199-203.
2. **Stewart EA**, Liau A, Friedman AJ. Operative laparoscopy followed by colpotomy for the resection of a colonic leiomyosarcoma. *J Reprod Med* 1991; 36(12):883-4.
3. **Stewart EA**, Jackson KV, Friedman AJ, Rein MS, Fox JH, Hornstein MD. The effect of baseline complex ovarian cysts on IVF outcome. *Fertil Steril* 1992; 57(6):1274-8.
4. **Stewart EA**, Rein MS, Friedman AJ, Zuchowski L, Nowak RA. Glycoprotein hormones and their common alpha-subunit stimulate prolactin production by explant cultures of human leiomyoma and myometrium. *Am J Obstet Gynecol* 1994;170:677-83.
5. **Stewart EA**, Peck K, Friedman AJ, Nowak RA. Relative overexpression of collagen type I and collagen type III messenger RNAs by uterine leiomyomas during the follicular phase of the menstrual cycle. *J Clin Endocrinol Metab* 1994; 79:900-6.
6. **Stewart EA**, Jain P, Penglase MD, Friedman AJ, Nowak RA. The myometrium of postmenopausal women produces prolactin in response to human chorionic gonadotropin and alpha subunit in vitro. *Fertil Steril* 1995; 64:972-6.
7. **Stewart EA**, Floor AE, Jain P, Nowak RA. Relative overexpression of messenger RNA for collagen types I and III and fibronectin in myometrium of pregnancy. *Obstet Gynecol* 1995; 86:417-22.
8. **Stewart EA**, Austin DJ, Jain P, Penglase MD, Nowak RA. RU486 suppresses prolactin production in explant cultures of leiomyoma and myometrium. *Fertil Steril* 1996; 65:119-24.
9. **Stewart EA**, Nowak RA. Leiomyoma-related bleeding: a classic hypothesis updated for molecular era. *Hum Reprod Update* 1996; 2:295-306.
10. Anania CA, **Stewart EA**, Quade BJ, Hill JA, Nowak RA. Expression of the fibroblast growth factor receptor in women with and without leiomyomas and abnormal uterine bleeding. *Molec Hum Reprod* 1997; 8:685-91.
11. **Stewart EA**, Rhoades AR, Nowak RA. Leuprolide acetate treated leiomyomas retain their relative overexpression of collagen type I and collagen type III messenger RNA. *J Soc Gynecol Invest* 1998; 5:44-7.

12. Lee BS, **Stewart EA**, Sahakian M, Nowak RA. Interferon- α is a potent inhibitor of basic fibroblast growth factor-stimulated cell proliferation in human uterine cells. *Am J Repro Immunol* 1998; 40:19-25.
13. **Stewart EA**, Nowak RA. New concepts in the treatment of uterine leiomyomas. *Obstet Gynecol* 1998; 92:624-7.
14. Austin DJ, Nowak RA, **Stewart EA**. Onapristone suppresses prolactin production in explant cultures of leiomyomas. *Gynecol Obstet Inv* 1999; 47:268-71.
15. **Stewart EA**, Sahakian M, Rhoades AR, VanVoorhis BJ, Nowak RA. Messenger RNA for the gonadal LH/hCG receptor is not present in human endometrium. *Fertil Steril* 1999; 71: 368-72.
16. Nowak RA, Mora S, Diehl T, Rhoades AR, **Stewart EA**. Prolactin is an autocrine or paracrine growth factor for human myometrial and leiomyoma cells. *Gynecol Obstet Inv* 1999; 48:127-32.
17. Yanushpolsky EH, Ginsburg ES, Fox JH, **Stewart EA**. Transcervical placement of a malecot catheter after hysteroscopic evaluation provides for easier entry into the endometrial cavity for women with histories of difficult intrauterine inseminations and/or embryo transfers: a prospective case series. *Fertil Steril* 2000; 73:402-5.
18. **Stewart EA**. Uterine fibroids. *Lancet* 2001; 357:293-8.
19. Propst AM, Quade BJ, Gargiulo AR, Nowak RA, **Stewart EA**. Adenomyosis demonstrates increased expression of the basic fibroblast growth factor receptor/ligand system compared to autologous endometrium. *Menopause* 2001; 8:368-71.
20. **Stewart EA**. Gonadotropins and the uterus: Is there a gonad-independent pathway? *J Soc Gynecol Invest* 2001; 8:319-26.
21. Propst AM, Quade BJ, Nowak RA, **Stewart EA**. Granulocyte macrophage colony-stimulating factor in adenomyosis and autologous endometrium. *J Soc Gynecol Invest*. 2002;9(2) 93-7.
22. **Stewart EA**, Faur AV, Wise LA, Reilly RJ, Harlow BL. Predictors of subsequent surgery for uterine fibroids following abdominal myomectomy. *Obstet Gynecol* 2002; 99(3):426-32.
23. Chavez MF, Garner EO, Sharif NA, Syed F, **Stewart EA**. Does the introduction of new technology change the population demographics? Minimally invasive technologies and endometrial polyps. *Gynecol Obstet Inv* 2002; 54(4):217-20.
24. Tempany CMC, **Stewart EA**, McDannold N, Quade BJ, Jolesz FA, Hynynen KH. MRI guided focused ultrasound surgery (FUS) of uterine leiomyomas: A feasibility study. *Radiology* 2003; 226:897-905.
25. Chavez NF, Zweizig SL, **Stewart EA**. Phantom Uterine Pain: Neuropathic Pain Following Hysterectomy. *J. Repro Med* 2003; 48(6):466-8.
26. **Stewart EA**, Gedroyc WM, Tempany CM, Quade BJ, Inbar Y, et al. Focused ultrasound treatment of uterine fibroids: Safety and feasibility of a noninvasive thermoablative technique. *Am J Obstet Gynecol* 2003; 189:48-54.

27. Wise LA, Palmer JR, Harlow BL, Spiegelman D, **Stewart EA**, Adams-Campbell LL, Rosenberg L. A prospective study of reproductive factors, hormone use, and risk of uterine leiomyomata in African-American women. *Am J Epidemiol* 2004; 159(2):113-23.
28. Wise LA, Palmer JR, Harlow BL, Spiegelman D, **Stewart EA**, Adams-Campbell LL, Rosenberg L. Risk of uterine leiomyoma in relation to tobacco, alcohol, and caffeine consumption in the Black Women's Health Study. *Human Reproduction* 2004; 19(8):1746-54.
29. Gross KL, Panhuysen CIM, Kleinman MS, Goldhammer H, Jones ES, Nassery N, **Stewart EA**, Morton CC. Involvement of Fumarate Hydratase in Nonsyndromic Uterine Leiomyomata: Genetic Linkage Analysis and FISH Studies. *Genes Chrom Cancer* 2004; 41:183-90.
30. Hindley J, Gedroyc WM, Regan L, **Stewart EA**, Tempany CMC, Hynynen KH, et al. Magnetic Resonance Imaging Guidance of Focused Ultrasound Therapy of Uterine Fibroids: early results. *Am J Radiol* 2004; 183: 1713-9.
31. Wise LA, Palmer JR, Spiegelman D, **Stewart EA**, Rosenberg L. Age-specific Rates of Self-reported Uterine Leiomyomata in the Black Women's Health Study. *Obstet Gynecol* 2005;105:563-8.
32. Walker CL, **Stewart EA**. Uterine Fibroids: The Elephant in the Room. *Science*. In press.
33. **Stewart EA**, Rabinovici J, Tempany CMC, Inbar Y, Hindley J, Gedroyc WM, et al. Clinical outcomes of focused ultrasound surgery for the treatment of uterine fibroids. *Fertil Steril In Press*.
34. **Goodwin SC**, Bradley LD, Lipman JC, **Stewart EA**, Noshier JL, Yeko TR, Sterling KM, Barth MH, Siskin GP, Worthington-Kirsch RL, Shlansky-Goldberg RD, Jha RC, Spies JB. Uterine artery embolization versus myomectomy: a multi-center comparative study. *Fertil Steril In Press*.
35. McDannold N, Tempany C, Fennessy F, So M, **Stewart EA**, Jolesz FA, Hynynen K. MRI-based thermometry and thermal dosimetry during focused ultrasound thermal ablation of uterine leiomyomas. *Radiology In Press*.
36. **Stewart EA**. MRgFUS: no panacea, but nevertheless a safe step forward. *Fertil Steril In Press*.

B. Reviews/Chapters:

37. **Stewart EA**, Friedman AJ. Steroidal treatment of myomas: Preoperative and Long-term Medical Therapy. In: Barbieri RL editor *Seminars in Reproductive Endocrinology*. New York: Thieme Inc., 1992; 10(4):344-57.
38. **Stewart EA**, Yeh J. The oviduct and ectopic pregnancy. In: Ryan KJ, Berkowitz RS, Barbieri RL, editors, *Kistner's Gynecology*, 6th Edition. St. Louis: Mosby, 1995, pp 166-86.
39. **Stewart EA**. GnRH-agonist therapy as an alternative to myomectomy. In: Bieber EJ, Macklin V, editors *The Art of Myomectomy*. Cambridge: Blackwell Science, 1998, pp 235-51.
40. Feldman S, **Stewart EA**. The uterus. In: Ryan KJ, Berkowitz RS, Barbieri RL, Dunaif A, editors. *Kistner's Gynecology and Women's Health*, 7th edition, St. Louis: Mosby, 1999, pp 121-42.

41. **Stewart EA.** Surgical alternatives to hysterectomy in the management of leiomyomas. Clinical Practice Bulletin, The American College of Obstetricians and Gynecologists No. 16, May 2000.
42. **Stewart EA,** Faur A. Future treatments for fibroids. Contemp Ob/Gyn 2000; 45:26-38.
43. Chavez NF, **Stewart EA.** Medical treatment of uterine fibroids. In: Van Voorhis B, editors Clinical Obstetrics and Gynecology. Philadelphia: Lippincott Williams & Wilkins, Inc., 2001; 44(2):372-84.
44. **Stewart EA.** Non-surgical treatment of uterine fibroids. In: Ginsburg ES, editors Infertility and Reproductive Medicine Clinics of North America. 2002;13:393-405.
45. **Stewart EA,** Strauss, JF. Leiomyomas, Adenomyosis, Endometrial Polyps. In: Barbieri RL, Strauss JF (ed). Yen and Jaffe's Reproductive Endocrinology. 5th Edition. Philadelphia Saunders 2004; 713-34.
46. Ezeh U, **Stewart EA.** Uterine Fibroids: background and significance for uterine artery embolization. In: Spies J, Pelage JP. Uterine Artery Embolization and Gynecologic Embolotherapy. Lippincott Williams & Wilkins 2005; 6-18.
47. Tempany C, McDannold N, **Stewart EA,** Hynynen K. Focused ultrasound for tumor ablation. In: vanSonnenberg E, McMullen WN, Solbiati L, editors. Tumor ablation: principles and practice. New York: Springer; 2005. p.273-84.

C. Clinical Communications

1. Stewart, EA. Surgical alternatives to hysterectomy in the management of leiomyomas. Clinical Practice Bulletin, The American College of Obstetricians and Gynecologists No. 16, May 2000. Commissioned by the American College of Obstetrics and Gynecology to aid practitioners in making decisions about appropriate obstetric and gynecologic care.
2. Lifford KL, **Stewart EA,** Tuomala RE, Tishler LW, Daily JP, Friedman S, Chapin MD, Gharib S. Common Gynecologic Problems. 2002 Published as a part of the Brigham and Women's Hospital Women's Health Care series to provide primary care physicians with clear clinical pathways to identify and treat common problems based on a comprehensive review of recent medical literature.

D. Educational Material

Stewart EA. Designing the Future. 1996. This tutorial was written for the Harvard Medical School second year pathophysiology course and focused on steroid hormone agonists and antagonists in the pathophysiology of breast and endometrial cancer.

E. Nonprint Materials

Stewart EA, Gross KL. "About Fibroids" section of clinical information. <http://www.fibroids.net>. Center for Uterine Fibroids, Brigham and Women's Hospital.

Stewart EA. Up-To-Date educational software. Author for Leiomyomas, Adenomyosis and Endometrial Polyps.

F. Patents

Nowak, RA, Stewart, EA. Number 6440445: Methods and Compounds for Treatment of Abnormal Uterine Bleeding. Issue date 08/27/02

G. Abstracts

1. Gargiulo AR, Quade BJ, Nowak RA, **Stewart EA**. Endometrial polyps from menopausal women have relative overexpression of basic fibroblast growth factor-receptor (FGF-R) compared with autologous endometrium. The American Society for Reproductive Medicine, 53rd Annual Meeting, October 18-22, 1997, Cincinnati, OH, CA.
2. Gross KL, Morton CC, **Stewart EA**. Finding genes for uterine fibroids. Presented at The American College of Obstetricians and Gynecologists, May 20-24, 2000, San Francisco, CA.
3. Tempany CM, **Stewart EA**, McDannold NJ, Quade BJ, Jolesz FA, Hynynen KH. MR-imaging guided focused ultrasound surgery of leiomyoma of the uterus: Early Experience. Radiology 2001; November 221:357.
4. **Stewart EA**, Kanuho V, Faur AV, Propst AM, Wise LA, Harlow BL, Quade BJ. Proliferating cell nuclear antigen staining of largest leiomyoma predicts recurrence risk after myomectomy. Presented at the Society for Gynecologic Investigation, 48th Annual Meeting, March 14-17, 2001, Toronto, Ontario, Canada.
5. **Stewart EA**, Tempany CMC, Quade BJ, Hynynen KH, Yanushpolsky EH, Jolesz F. MR-guided focused ultrasound treatment of uterine fibroids. J Soc Gynecol Investigation 2002;9(1S):351A.
6. **Stewart EA**, Hindley J, Kim HS, Oestmann JW, Hesley G, Rabinovici J. MR-guided focused ultrasound treatment of uterine leiomyomas. Presented at the Society for Gynecologic Investigation, Washington D.C., 2003.

7. **Stewart EA**, Hindley J, Hesley G, Rabinovici J, Kim HS, Shushan A. MRI-Guided Focused Ultrasound Treatment of Uterine Fibroids. In: The 2004 Annual Clinical Meeting Final Program and the April 2004 Supplement of *Obstetrics & Gynecology*.
8. **Stewart EA**, Istre O. A Novel, Minimally Invasive Surgical Device for the Resection of Polyps and Myomas. In: The 2004 Annual Clinical Meeting Final Program and the April 2004 Supplement of *Obstetrics & Gynecology*.
9. So MJ, McDannold N, Mulkern RV, Hynynen KH, Jolesz FA, Tempany CM, **Stewart EA**, Rybicki FJ. Pre-treatment acoustic window area as a predictor of the post-treatment nonperfused volume for MR-guided Focused Ultrasound Surgery (MRgFUS) of uterine fibroids. Proc ISMRM, 2004.
10. So MJ, Fennessy FM, Zou KH, **Stewart EA**, Rybicki FJ, Tempany CM, McDannold NJ, Hynynen KH, Jolesz FA. Effectiveness of MR-guided Focused Ultrasound Surgery treated uterine leiomyomas correlated with menstrual cycle phase. RSNA, 2004.
11. Fennessy FM, So MJ, McDannold NJ, Haker SJ, Zou KH, Tempany CM, **Stewart EA**, et al. Six months post MR-guided Focused Ultrasound Surgery of uterine leiomyoma: correlation of volume change with non-perfusions treatment volume and sonication number. RSNA, 2004.
12. McDannold NJ, Tempany CM, **Stewart EA**, Jolesz FA, Kullervo H. MRI-based thermometry and thermal dosimetry during focused ultrasound thermal ablation of uterine leiomyomas. Presented at the 2004 IEEE Meeting.
13. So MJ, McDannold N, Fennessy FM, Szot A, **Stewart EA**, Jolesz FA, Rybicki FJ, Hynynen K, Tempany CM. Does the thickness of anterior abdominal wall fat affect the treatment of uterine fibroids treated with Magnetic Resonance guided Focused Ultrasound Surgery (MRgFUS)? To be presented at the 5th Interventional MRI symposium in Boston, October 15-16, 2004.
14. So MJ, Fennessy FM, Zou KH, **Stewart EA**, Rybicki FJ, Tempany CM; et al. Does baseline uterine volume affect treatment outcome in MR-guided Focused Ultrasound Surgery (MRgFUS) for Uterine Fibroids? RSNA, 2005.
15. Fennessy FM, So MJ, McDannold NJ, Zou KH, **Stewart EA**, Tempany CM, et al. Correlation of volume change 1 year post-MR guided Focused Ultrasound Surgery of uterine fibroids with nonperfused treatment volume and thermal dose volume. RSNA, 2005.
16. Fennessy FM, So MJ, McDannold NJ, Zou KH, **Stewart EA**, Tempany CM, et al. Evaluation of symptom relief and fibroid reduction 1 year following MR guided Focused Ultrasound Surgery. RSNA, 2005.