

## CURRICULUM VITAE

**DATE PREPARED:** October 6, 2008

### **PART I: General Information**

**Name:** Russell William Jennings

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**Office Address:** Children's Hospital Boston  
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**Place of Birth:** El Paso, Texas

### **Education:**

1976 Certificate, Cum laude, Hospital Corps School, United States Navy  
1977 Certificate, Field Medical Service School, United States Marine Corps  
1978 Diploma, Cum laude, Naval Academy Prep School  
1980 United States Naval Academy (resigned to pursue medicine)  
1982 B.S. (Biochemistry, College of Letters and Science), Cum laude, U. Of California, Davis  
1986 M.D., U. Of California, San Francisco School Of Medicine

### **Postdoctoral Training:**

1986-1987 Intern in Surgery, Surgery, University of California  
1987-1989 Resident II-III in Surgery, Surgery, University of California  
1989-1992 Postdoctoral Research Fellow in Fetal Treatment Laboratory, University of California  
1991-1992 Clinical Associate in Surgery, University of California  
1992-1993 Senior Resident in Surgery, University of California  
1993-1994 Chief Resident in Surgery, University of California  
1994-1995 Associate Chief Resident in Pediatric Surgery, Children's Hospital  
1995-1996 Chief Resident in Surgery, Children's Hospital

**Licensure and Certification:**

1987	State of California Medical License
1988	U.S. Drug Enforcement Administration
1991	Basic Laparoscopic Surgery
1991	Scientific Statistics
1991	Scientific Writing
1993	Surgical Ultrasound
1994	State of Massachusetts Medical License
1994	State of Massachusetts, Controlled Substances
1994	Advanced Trauma Life Support
1994	Advanced Techniques in Laparoscopic Surgery
1995	Pediatric Airway Endoscopy
1995	American Board of Surgery; General Surgery
1996	Advanced Videoscopic Surgery
1998	American Board of Surgery: Special Competence in Pediatric Surgery
2005	Robotic Certification
2006	Laser Certification
2007	Pediatric Advanced Life Support
2007	Advanced Trauma Life Support
2008	Fundamentals of Laparoscopic Surgery

**Academic Appointments:**

1994-1996	Clinical Fellow in Surgery, Harvard Medical School, Boston, MA
1996-1998	Assistant Professor of Surgery, University of California, San Francisco, CA
1998-1999	Assistant Professor of Surgery and Pediatrics, University of California, San Francisco, CA
1999-2007	Assistant Professor of Surgery, Harvard Medical School, Boston, MA
2007-	Associate Professor of Surgery, Harvard Medical School, Boston, MA

**Hospital or Affiliated Institution Appointments:**

01/96-12/99	Attending Surgeon, Kaiser Permanente Medical Center, San Francisco, CA
01/96-12/99	Attending Surgeon, California Pacific Medical Center, San Francisco, CA
01/96-12/99	Attending Surgeon, San Francisco General Hospital, San Francisco, CA
01/96-12/99	Attending Surgeon, University of California, San Francisco, Mt.

	Zion Hospital, San Francisco, CA
01/96-12/99	Attending Surgeon, University of California, San Francisco, CA
01/99-	Fetal Surgeon, Brigham and Women's Hospital, Boston, MA
01/99-12/05	Assistant in Surgery, Children's Hospital, Boston, MA
01/05-	Associate in Surgery, Children's Hospital, Boston, MA
09/07-	Attending Surgeon, Boston Medical Center, Boston, MA

**Other Professional Positions and Major Visiting Appointments:**

1998	Visiting Professor in Fetal Surgery, Kyushu University, Fukuoka, Japan
2007	Visiting Professor in Fetal Surgery, King Faisal Hospital, Riyadh, Saudi Arabia
2007	Visiting Professor in Pediatrics and Fetal Surgery, Hubei Women's and Children's Hospital, Wuhan, People's Republic of China

**Major Committee Assignments:**

1996-1999	Operating Room Committee, Member, University of California San Francisco Medical Center
1996-1999	Resident Counsel and Review Committee, Member, University of California San Francisco Medical School
1999-2003	Animal Care and Use Committee, Member, Children's Hospital
2004-2007	Fetal Therapy Committee, Member, American Pediatric Surgical Association
2008-	
2005-	Associate Attending Committee, Member, Children's Hospital
2005-	Workforce Committee, Member, American Pediatric Surgical Association
2006-	Laparoscopic Credentialing Committee, Member, Children's Hospital
2008-	Publications Committee, American Academy of Pediatrics, Surgical Section

**Professional Societies:**

1982-	Phi Kappa Phi Honor Society, Member
1986-	Alpha Omega Alpha Honor Medical Society, Member
1992-	International Fetal Medicine and Surgical Society, Member
1996-	American College of Surgeons, Fellow
1996-	American Association for the Advancement of Science, Member
1996-	Howard C. Naffziger Surgical Society, Member
1996-1999	Faculty Association, University of California, Member
1997-	Society of Laparoendoscopic Surgeons, Member
1997-1999	American College of Surgeons, North California Chapter, Member

- 1998- American Medical Association, Member
- 2001- New England Surgical Society, Member
- 2002- Boston Surgical Society, Member
- 2006- American Academy of Pediatrics, Fellow

**Awards and Honors:**

- 1977-1978 Director's Scholar's List, Naval Academy Prep School
- 1979-1980 Commandant's Award "For Combined Excellence in Academic, Athletic, and Military Activities", United States Naval Academy
- 1982 Herbert Craft Scholarship "In Recognition of Outstanding Academic Record", U. Of California, Davis
- 1982 Biochemistry Departmental Citation, "In Recognition of Outstanding Accomplishment in Biochemistry", U. Of California, Davis, College of Letters and Sciences
- 1986 Nurz Galante Scholarship "To Encourage a Talented Student in Training for a Surgical Career", U. Of California, San Francisco
- 1986 Alpha Omega Alpha Honor Medical Society Nusz Achievement Award, "Outstanding Research Associate", U. Of California, San Francisco

**Part II: Research, Teaching, and Clinical Contributions**

**Narrative report of Research, Teaching, and Clinical Contributions**

My focus is on accurate prenatal diagnosis, optimum counseling and treatment of severe and life-threatening congenital anomalies.

There are several active research projects underway focused on fetal treatment. Working with Dario Fauza we developed techniques for fetal cardiac intervention that we have applied to human fetal cardiac diseases including correction of fetal critical aortic stenosis for the prevention of hypoplastic left heart syndrome, and fetal atrial septostomy for amelioration of hypoplastic left heart syndrome with intact atrial septum. These techniques have become a major focus of the Dept of Cardiology here at Children's as well as at the Brigham and Women's Hospital. The frequency of mid-gestation fetal cardiac procedures has risen dramatically as the initial human work has been very promising.

We have also worked on ultrasound guided balloon tracheal occlusion in the fetus with instillation of agents to enhance pulmonary development. These techniques have not been applied clinically, but show promise. We are looking to apply clinically the use of an autogenous stem cell populated diaphragmatic composite graft which in animals has shown promise for functional diaphragm replacement.

My teaching contributions remain focused on one-on-one teaching of medical students and residents at all levels in the clinical care of newborns and children both on the ward and in the operating room. I also teach courses about common pediatric surgical problems and fetal diagnosis.

My main clinical thrust involves growing and supporting the Advanced Fetal Care Center (AFCC), a multidisciplinary Harvard-wide fetal diagnosis and treatment program. We have made tremendous progress as evidenced by patient volume, patient satisfaction, referring physician satisfaction, the AFCC weekly conference attendance, and number of fetal surgical cases performed. Our fetal radiologists are now on par or better than the best in the world for diagnosing fetal anomalies, and this is supported by the number and complexity of referrals both locally and from across the United States. The AFCC is now the world's leader in treatment of fetal cardiac anomalies, having performed almost all of the world's experience and with the best outcomes to date. We moved into our new AFCC facility in May 2006. We ran our 2<sup>nd</sup> National Conference October 12, 13 2007.

My current efforts involve further expansion of the AFCC into clinical, innovative and experimental fetal interventions. We currently treat congenital diaphragmatic hernia (CDH), airway occlusion, large chest masses, and bladder outlet obstruction. We have also treated successfully twin-to-twin transfusion syndrome (TTTS) and Twin reversed arterial perfusion (TRAP) with plans to expand treatment of both conditions. We are also beginning work on fetal therapy for CDH and congenital high airway obstruction syndrome (CHAOS).

### **Funding Information**

1999-2004 Co-P.I., N.I.H. (RO1) Fetal Tracheal Occlusion for Severe Diaphragmatic Hernia

### **Report of Teaching**

#### **1. Local contributions**

##### **Advisory and Supervisory Responsibilities in Clinical or Laboratory Setting**

1996-1999 12 Residents for 10 hrs/year, Didactic training, case review for pediatric medicine, U. Of California, San Francisco School Of Medicine

1996-1999 1 Resident for 1000 hrs/year, Surgical techniques: teaching residents in the OR, U. Of California, San Francisco School Of Medicine

1996-1999 5 Residents for 60 hrs/year, Attending for weekly X-ray rounds, U. Of California, San Francisco School Of Medicine

- 1996-1999 3 Residents for 200 hrs/year, Surgery 450: Attending for resident teaching in OR and on wards, U. Of California, San Francisco School Of Medicine
- 1996-1999 2 Residents for 50 hrs/year, Surgery 140: Pediatric Surgery Attending, Ward Teaching, Advising, U. Of California, San Francisco School Of Medicine
- 1996-1999 10 Residents for 150 hrs/year, Surgery 400: Direct supervision of residents for surgery conferences, grand rounds, M&M's, U. Of California, San Francisco School Of Medicine
- 1996-1999 9 Medical Students for 12 hrs/year, Surgery 110: Pediatric Surgery Lectures and Seminars, U. Of California, San Francisco School Of Medicine
- 1996-1999 3 Residents for 200 hrs/year, Surgery 403: Attending for current pediatric surgery patient management, U. Of California, San Francisco School Of Medicine
- 1996-1999 6 Residents for 30 hrs/year, Attending for Pediatric Surgery Rounds - weekly review of cases, U. Of California, San Francisco School Of Medicine
- 1996-1999 3 Interns for 250 hrs/year, Surgery 495: General Surgery Clinical Teaching. Attending for intern seminars and teaching in OR and on wards, U. Of California, San Francisco School Of Medicine
- 1999-2006 4 Medical Students, 10 Residents, and 2 Fellows for 4 hrs/year, Attending for Surgery Course on Esophageal Atresia, Harvard Medical School / Children's Hospital Boston.
- 1999-2006 4 Medical Students, 10 Residents, and 2 Fellows for 4 hrs/year, Attending for surgery course on fetal physiology and development, Harvard Medical School / Children's Hospital Boston.
- 1999-2006 4 Medical Students, 10 Residents, and 2 Fellows for 4 hrs/year, Attending for Surgery Course on pediatric airway development, assessment, and treatment, Harvard Medical School / Children's Hospital Boston.
- 2000-2004 30 medical students for 1 hr/year, Attending for course on obstetrics and gynecology – fetal surgery, Harvard Medical School / Beth Israel

Deaconess Medical Center.

2006- 60 medical students for 1 hr/year, Attending for course on the surgical treatment of congenital malformations, Harvard Medical School.

### **Advisees/Trainees**

<i>Training Duration</i>	<i>Institution</i>
1994-1997	George B. Mychaliska University of California, San Francisco
1994-1997	Joy Graf, M.D. University of California, Davis
1994-1997	Kelli M. Bullard, M.D. University of California, San Francisco
1996-1997	H. Tamiko Housley, M.D. University of California, Los Angeles
1996-1998	T. Richard Beech, M.D. Baylor University, Dallas
1997-1998	Christopher M. Strear, M.D. University of California, San Francisco
1997-1998	Corbett Wilkinson, M.D. University of West Virginia
1997-1999	Toshio Chiba, M.D., PhD Tohuko University School of Medicine, Sendai, Japan
1997-1999	Bettina Westerburg, M.D. Maxmillians Universitat Munchen, Munich, Germany
1997-1999	John B. Lopoo Jr., M.D. University of Oklahoma, Health Sciences Center
1997-1999	Tatsuo Ohkubo, M.D., PhD University School of Medicine, Tokyo
1998-1999	Koshi Asabe, M.D. Fukuoka Children's Hospital, Japan
1999-2000	Michael Chan, M.D. Brigham and Women's Hospital, Boston
1999-2000	Helena Guzmann, M.D. Children's Hospital Boston
2000-2002	Amir Kavani, M.D. Children's Hospital Boston
2005-2006	Shaun Kunisaki, M.D. Children's Hospital Boston

## **2. Regional, national, or international contributions**

### **Invited Presentations**

#### **Local**

198 "Fetal Polymorphonuclear Leukocyte Phagocytosis", Second Annual J. Englebert  
9 Dunphy Resident Research Day, University of California, San Francisco/*Invited*

*Lecture]*

- 199 "Fetal Diaphragmatic Wounds Heal with Scar Formation", Fourth Annual J.  
1 Englebert Dunphy Resident research Day, San Francisco, CA*[Invited Lecture]*
- 199 "In Utero Surgery and the Development of Fetal Intensive Care", Fourth Annual  
1 William K. Hamilton*[Distinguished Lecturer]*
- 199 "Advances in Fetal Intensive Care", Fifth Annual Resident Research Day,  
2 Department of Surgery, University of California, San Francisco, *[Invited Lecture]*
- 199 "Maternal-fetal Perioperative Monitoring", University of California, San Francisco,  
2 CA*[Surgical Grand Rounds]*
- 199 "Ultrasound of the Trauma Surgeon", University of California, San Francisco,  
3 CA*[Surgical Grand Rounds]*
- 199 "Maternal-Fetal Intensive Care", University of California, San Francisco,  
3 CA*[Perinatal Grand Rounds]*
- 199 "Role of Surgical Treatment in Peptic Ulcer Disease in the age of Helicobacter  
4 Pylori", University of California, San Francisco*[Surgical Grand Rounds]*
- 199 "Airway Developmental Anomalies and Reconstruction", University of California,  
6 San Francisco, CA*[Otolaryngology Grand Rounds]*
- 199 "Preterm Labor After Fetal Surgery", University of California, San  
6 Francisco*[Surgical Grand Rounds]*
- 199 "Primary Total Reconstruction of Complex Anomalies", University of California,  
8 San Francisco, CA*[Surgical Grand Rounds]*
- 199 "Fetal Surgery", Beth Israel Deaconess Medical Center, Boston, MA*[Obstetrics and  
9 Gynecology Grand Rounds]*
- 200 "Debate Surrounding Fetal Surgery", Women & Children's Health Clerkship:  
0 "Social, Economic, and Policy Issues Affecting Clinical Care", *[Invited Lecture]*
- 200 "Fetal Surgery", Children's Hospital, Boston, MA*[Radiology Grand Rounds]*  
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- 200 "Fetal Surgery", Department of Continuing Education, Harvard Medical School,  
0 Boston, MA*[Invited Lecture]*

- 200 "Fetal Surgery", Department of Continuing Education, Harvard Medical School,  
0 Boston, MA[*Invited Lecture*]
- 200 "Practical Aspects of Pediatric Anesthesia", Department of Continuing Education,  
0 Harvard Medical School, Boston, MA.[*Invited Lecture*]
- 200 "EXIT Procedure", Children's Hospital, Boston, MA[*Otolaryngology Grand Rounds*]  
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- 200 "Fetal Surgery: State of the Art 2001", Ultrasound/Women's Imaging 2001,  
1 Department of Radiology, Brigham & Women's Hospital, Boston, MA[*Invited  
Lecture*]
- 200 "The Challenges of Starting a Fetal Surgery Program", Fetal Surgery Symposium,  
1 Children's Hospital, Boston, MA[*Invited Lecture*]
- 200 "The Advanced Fetal Care Center", Children's Hospital, Boston, MA[*Surgical Grand  
2 Rounds*]
- 200 "Advanced Fetal Surgery", Massachusetts General Hospital, Boston, MA[*Senior  
3 Grand Rounds*]
- 200 "Fetal Surgical Advances", Ultrasound Conference, Brigham & Women's Hospital,  
3 Boston, MA[*Invited Lecture*]
- 200 "History, Rationale and Current Status of Fetal Surgery", Boston Fetal Cardiac  
3 Intervention Program Symposium, Boston, MA[*Invited Lecture*]
- "Update on Fetal Surgery", Children's Hospital, Boston, MA [Surgical Grand Rounds]  
200  
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## **Regional**

- 199 "Bioengineering Aspects of Endoscopic Surgery", University of California  
0 Bioengineering Seminar, Berkeley, CA[*Invited Lecture*]
- 199 "Fetal Surgery: Challenges and Opportunities", California Pacific Medical Center,  
3 San Francisco, CA[*Grand Rounds*]
- 199 "Recent Advances in Fetal Surgery", Mt. Zion Hospital, San Francisco, CA[*Surgical  
3 Grand Rounds*]

- 199 "Clinical Applications of Fetal Surgery", Kaiser San Francisco, San Francisco,  
3 CA[*Pediatric Grand Rounds*]
- 199 "Neonatal Constipation and Anorectal Anomalies", Kaiser, San Francisco,  
6 CA[*Pediatric Grand Rounds*]
- 199 "Prenatal Diagnosis of Congenital Diaphragmatic Hernia", California Pacific  
7 Medical Center, San Francisco, CA[*Perinatal Grand Rounds*]
- 199 "Cystic Lung Lesions in the Fetus", California Pacific Medical Center, San  
7 Francisco, CA[*Perinatal Grand Rounds*]
- 199 "Evaluation of Stridor and New Approaches to Pediatric Airway Reconstruction",  
9 Northern California Pediatric Grand Rounds, Kaiser Hospitals, Vallejo,  
CA[*Pediatric Grand Rounds*]
- 199 "Fetal Surgery", Division of Newborn Medicine, Brigham & Women's Hospital,  
9 Boston, MA[*Invited Lecture*]
- 199 "Fetal Trauma", Trauma Conference: Injuries to Children: From Minor to Major  
9 and Multiple. Cambridge, MA[*Invited Lecture*]
- 200 "Fetal Surgery", New England Regional Trauma Conference, Worcester,  
1 MA[*Invited Lecture*]
- 200 "The Perinatal Team Approach to Fetal Treatment", New England Perinatal Society  
1 Annual Meeting, Manchester, VT[*Invited Lecture*]
- 200 "Update on Fetal Surgery", St. Elizabeth's Hospital, Boston, MA[*Pediatric Grand  
2 Rounds*]
- 200 "The Advanced Fetal Care Center", St. Elizabeth's Hospital, Boston, MA[*Obstetrical  
2 Grand Rounds*]
- 200 "The Advanced Fetal Care Center", Boston Medical Center, Boston, MA[*Pediatric  
2 and Obstetrical Grand Rounds*]
- 200 "Fetal Diagnosis and Treatment", Obstetrical Grand Rounds, Brockton, MA[*Invited  
2 Lecture*]
- 200 "Prenatal Presentation of Neonatal Diseases", Caritas Good Samaritan Medical  
3 Center, Brockton, MA[*Invited Lecture*]

## National

- 199 "New Concepts in Fetal Intensive Care", Eleventh Annual Pediatric Surgery  
0 Resident's Conference, Chicago, IL[*Invited Lecture*]
- 199 "Update on Fetal Surgery", Bioengineering Seminar 1990, San Francisco,  
0 CA[*Invited Lecture*]
- 199 "Reduced Size Lung Transplantation: A Model for Treatment of Congenital  
0 Diaphragmatic Hernia", Sixth Annual CNMC ECMO Symposium. Breckenridge,  
CO[*Invited Lecture*]
- 199 "Fetal Intraosseous Access: A New Approach to Gain Access to Fetal Circulation  
1 During Fetal Surgery", American College of Surgeons 77th Clinical Congress,  
Chicago, IL[*Invited Lecture*]
- 199 "Amniotic Fluid Stimulates or Inhibits Fibroblasts, Depending on Gestational  
1 Age", American College of Surgeons 77th Clinical Congress, Chicago, IL[*Invited  
Lecture*]
- 199 "Fetal Fracture Healing in a Large Animal Model", American College of Surgeons  
1 77th Clinical Congress, Chicago, IL[*Invited Lecture*]
- 199 "The Use of Laboratory Animals in Fetal Surgery Research", American  
1 Association for Laboratory Animal Science, San Francisco, CA[*Invited Lecture*]
- 199 "Laboratory Animals are Crucial for In Utero Surgical Research", American  
1 Association for Laboratory Animal Science Annual meeting, Redwood City,  
CA[*Invited Lecture*]
- 199 "Vascular Anatomy of Congenital Diaphragmatic Hernia in the Fetus: Implications  
2 for In Utero Repair", Thirteenth Annual Pediatric Surgery Resident's Conference,  
Kansas City, MI[*Invited Lecture*]
- 199 "Endoscopic Transgastric Fundoplication for Gastroesophageal Reflux", American  
2 Pediatric Surgery Association, Colorado Springs, CO[*Invited Lecture*]
- 199 "Nitric Oxide Inhibits Preterm Labor in the Rhesus Monkey", Thirteenth Annual  
2 Pediatric Surgery Resident's Conference, Kansas City, MI[*Invited Lecture*]
- 199 "Transgastric Endoscopic Fundoplication: A Novel Technique for Preventing  
2 Gastroesophageal Reflux", Ethicon, INC., Cincinnati, OH[*Seminar*]
- 199 "Vascular Considerations in Correction of Congenital Diaphragmatic Hernia", 78th

- 2 Clinical Congress of the American College of Surgeons, New Orleans, LA[*Invited Lecture*]
- 199 "Perioperative Maternal-Fetal Intensive Care", 79th Annual Clinical Congress of  
3 the American College of Surgeons[*Invited Lecture*]
- 199 "Video Esophagoscopy for Thoracoscopic Esophageal Myotomy in Children",  
6 American Society of Gastrointestinal Endoscopy[*Invited Lecture*]
- 199 "Update on the Status of Fetal Surgery", Clinical Aspects of Perinatal Medicine,  
8 Oak Brook, IL[*Keynote Speaker*]
- 199 "The EXIT Technique", Clinical Aspects of Perinatal medicine, Oak Brook,  
8 IL[*Keynote Speaker*]
- 199 "Fetoscopic Therapy for Congenital Diaphragmatic Hernia", Clinical Aspects of  
8 Perinatal Medicine, Oak Brook, IL[*Keynote Speaker*]
- 199 "Radio Telemetry Monitoring of the Fetus and Uterus after Fetal Surgery",  
8 NASA's Sensors 2000; and North Carolina Engineering Research Center.  
Biomedical Sensing: Understandi[*Keynote Speaker*]
- 199 "Fetal Surgery- What's New?", Beverly Hospital, Beverly, MA[*Pediatric Grand*  
9 *Rounds*]
- 200 "Ultrasound-guided Fetal Tracheal Occlusion", Thirty-second Annual Meeting of  
1 the American Pediatric Surgical Association, Naples, FL[*Invited Lecture*]
- 200 "Lecture on Fetal Surgery", Utah Fetal Surgery Symposium[*Invited Lecture*]  
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- 200 "Positive Intrapulmonary Oncotic Pressure Enhances Short Term Lung Growth  
1 Acceleration After Fetal Tracheal Occlusion", Section on Surgery of the American  
Academy of Pediatrics 2001 Annual Meeting, San Francisco, CA[*Invited Lecture*]
- 200 "The Amniotic Fluid as a Source of Cells for Fetal Tissue Engineering: Initial  
1 Human Experience", Eighty-seventh Clinical Congress of the American College of  
Surgeons, New Orleans, LA[*Invited Lecture*]
- 200 "Treatment of Fetal Myelomeningocele with Neural Stem Cells: Preliminary  
2 Experience", Twenty-third Annual Meeting of the American Pediatric Surgical  
Association, Phoenix, AZ[*Invited Lecture*]
- 200 "Reduced Immunogenicity of Amniocytes During Expansion in Vitro: Implications

- 2 for Heterologous Tissue Engineering Applications", Section on Surgery of the American Academy of Pediatrics 2002 Annual Meeting, Boston, MA [*Invited Lecture*]
- 200 "Amniotic Fluid-derived Mesenchymal Cells Differentiate into Myogenic  
2 Precursors in Vitro", Eighty-eighth Clinical Congress of the American College of Surgeons, San Francisco CA [*Invited Lecture*]
- 200 "Reduced Immunogenicity of Amniocytes During Expansion in Vitro: Implications  
2 for Heterologous Tissue Engineering Applications", Eighty-eighth Clinical Congress of the American College of Surgeons, San Francisco, CA [*Invited Lecture*]
- 200 "Treatment of Fetal Myelomeningocele with Neural Stem Cells: Early Phenotypical  
2 Analysis", Section on Surgery of the American Academy of Pediatrics 2002 Annual Meeting", Boston, MA [*Invited Lecture*]
- 200 "Fetal Surgery, Past, Present and Future: A Celebration of a Century of Neonatal  
3 Care", Baylor University Medical Center, Dallas, TX [*Invited Lecture*]
- 200 "Bronchial Atresia: The Hidden Pathology Within a Spectrum of Prenatally  
5 Diagnosed Lung Masses", American Pediatric Surgical Association 36th Annual Meeting, Phoenix, AZ [*Invited Lecture*]
- 200 "Fetal Surgery – An Update and a Perspective", Hot Topics in Neonatology,  
5 Washington, DC [*Invited Lecture*]
- 200 "Fetal Surgery – One perspective", Wisconsin Perinatal Association, Appleton,  
5 WI [*Invited Lecture*]
- 200 "Value of a Fetal Program", Wisconsin Perinatal Association, Appleton, WI [*Invited  
5 Lecture*]
- 200 "Fetal Surgery – A Perspective and The Value of a Program", Childrens Hospital,  
5 Milwaukee, WI [*Surgery Grand Rounds*]
- 200 "EXIT-to-ECMO for Severe Congenital Diaphragmatic Hernia", American  
6 Pediatric Surgical Association 37th Annual Conference, May 21-24, 2006, Hilton Head, SC [*Invited Lecture*]
- 200 "Prenatal Repair of Myelomeningocele - Is Fetal Surgery Justified for Non-Lethal  
6 Anomalies?", American Pediatric Surgical Association 37th Annual Meeting, May 21-24, 2006, Hilton Head, SC [*Invited Lecture*]
- 200 "Predicting Inadequate Long-Term Lung Development in Children with Congenital  
6 Diaphragmatic Hernia", American Pediatric Surgical Association 37th Annual

Meeting, Hilton Head, SC[*Invited Lecture*]

## **International**

- 198 "Pulmonary Lobar Transplantation in Neonatal Swine", International Fetal  
9 Medicine and Surgery Society Eighth Annual Meeting, Pacific Grove, CA[*Invited  
Lecture*]
- 199 "New Techniques in Fetal Surgery", Royal College of Physicians and Surgeons of  
1 Canada, Quebec, Canada[*Invited Lecture*]
- 199 "Fetoscopic Surgery for Treatment of Congenital Anomalies: an Experimental  
1 Model", International Fetal Medicine and Surgery Society, Phoenix, AZ[*Invited  
Lecture*]
- 199 "Fetal Diaphragmatic Wounds Heal with Scar Formation", International Fetal  
1 Medicine and Surgery Society, Phoenix, AZ[*Invited Lecture*]
- 199 "Adult to Neonate Human Lung Transplantation: Anatomic Considerations", Royal  
1 College of Physicians and Surgeons of Canada, Quebec, Canada[*Invited Lecture*]
- 199 "Intraosseous Infusion During Fetal Surgery: a Novel Route for Fetal Intravascular  
1 Access", International Fetal Medicine and Surgery Society, Phoenix, AZ[*Invited  
Lecture*]
- 199 "Radio-telemetric Fetal Monitoring During and After Open Fetal Surgery",  
1 International Fetal Medicine and Surgery Society, Phoenix, AZ[*Invited Lecture*]
- 199 "Perioperative Maternal Fetal Physiology", International Fetal Medicine and  
2 Surgery Society, Evian, France[*Invited Lecture*]
- 199 "Neuroblastoma: Prenatal Ultrasound Diagnosis and Natural History", Canadian  
2 Association of Pediatric Surgeons and British Association of Pediatric Surgeons,  
Ottawa, Ca[*Invited Lecture*]
- 199 "Endoscopic Placental Vessel Catheterization: A Technique for Chronic Fetal  
2 Vascular Access", International Fetal Medicine and Surgery Society, Evian,  
France[*Invited Lecture*]
- 199 "Fetoscopic Techniques for the Treatment of Congenital Diaphragmatic Hernia",  
7 International Fetal Medicine and Surgery Society's 16th Annual meeting, Alyeska,  
Alaska[*Invited Lecture*]
- 199 "Recent Problems in Fetal Surgery", Eighth Annual International Perinatal

- 7 Conference, Kyushu University, Fukuoka, Japan[*Keynote Speaker*]
- 199 "Current Status of Fetal Surgery in the United States", Eighth Annual International  
7 Perinatal Conference, Kyushu University, Fukuoka, Japan[*Keynote Speaker*]
- 199 "Treatment of Congenital Diaphragmatic Hernia Before Birth", Eighth Annual  
7 International Perinatal Conference, Kyushu University, Fukuoka, Japan[*Keynote Speaker*]
- 200 "The Amniotic Fluid as a Source of Cells for Fetal Tissue Engineering", Thirty-  
1 fourth Annual Meeting of the Pacific Association of Pediatric Surgeons and  
Eleventh Council m[*Invited Lecture*]
- 200 "The Amniotic Fluid as a Source of Cells for Fetal Tissue Engineering: Initial  
1 Human Experience", XLVIII Annual International Congress of the British  
Association of Pediatric Surgeons, London, Unite[*Invited Lecture*]
- 200 "Successful Balloon Aortic Valvoplasty in a Mid Gestation Fetus", Twenty-first  
2 Annual Meeting of the International Fetal Medicine and Surgery Society,  
LaMalbaie, Queb[*Invited Lecture*]
- 200 "Ultrasonic Guidance for Location of the Trachea During the EXIT Procedure for  
2 Cervical Teratoma", Twenty-first Annual Meeting of the International Fetal  
Medicine and Surgery Society, La Malbaie, Que[*Invited Lecture*]
- 200 "EXIT for Congenital Diaphragmatic Hernia", International Fetal Medicine and  
2 Surgery Society, Quebec, Canada[*Invited Lecture*]
- 200 "Fetal Tissue Engineering Promyogenic Differentiation of Mesenchymal  
2 Amniocytes in Vitro", Twenty-First Annual Meeting of the International Fetal  
Medicine and Surgery Society, LaMalbaie, Quebe[*Invited Lecture*]
- 200 "Myometrical Blockade with Botulinus Toxin as a Potential Method of Premature  
2 Labor Prevention After Fetal Surgery", Twenty-first Annual Meeting of  
International Fetal Medicine and Surgery Society, LaMalbaie, Quebec, [Invited  
Lecture]
- 200 "Fetal Tissue Engineering: Promyogenic Differentiation of Mesenchymal  
2 Amniocytes in Vitro", Twenty-first Annual Meeting of the International Fetal  
Medicine and Surgery Society, La Malbaie, Que[*Invited Lecture*]
- 200 "The Effects of Increased Intrapulmonary Oncotic Pressure upon Fetal Lung  
2 Growth", XXXI International Symposium of Pediatric Surgery, Obergurgl, Tyrol,  
Austria[*Invited Lecture*]

- 200 "Exit Trial of Ventilation in the Treatment of Severe Congenital Diaphragmatic Hernia", Internal Fetal Medicine and Surgical Society, Quebec, Canada [*Invited Lecture*]
- 200 "Enhancement of Short Term Fetal Lung Growth after Tracheal Occlusion Through Intrapulmonary Hyperoncotic Pressure", Twenty-first Annual Meeting of the International Fetal Medicine and Surgery Society, LaMalbaie, Queb [*Invited Lecture*]
- 200 "Repopulation of the Spinal Cord with Neural Stems in a Model of Fetal Myelomeningocele", Twenty-first Annual Meeting of the International Fetal Medicine and Surgery Society, La Malbaie, Que [*Invited Lecture*]
- 200 "Fetal Tissue Engineering: Downregulation of Immune-associated Antigens in Mesenchymal Amniocyte Culture", Twenty-First Annual Meeting of the International Fetal Medicine and Surgery Society, LaMalbaie, Cana [*Invited Lecture*]
- 200 "The Effects of Increased Intrapulmonary Oncotic Pressure upon Fetal Lung Growth", XXXI International Symposium of Pediatric Surgery, Obergurgl, Tyrol, Austria [*Invited Lecture*]
- 200 "Natural History of Large Volume Chest Masses in the Fetus", Twenty-second Annual Meeting of the International Fetal Medicine and Surgery Society, Charleston, SC [*Invited Lecture*]
- 200 "EXIT with Trial of Ventilation for High Risk Congenital Diaphragmatic Hernia", Twenty-second Annual Meeting of the International Fetal Medicine and Surgery Society, Charleston, SC [*Invited Lecture*]
- 200 "Effect of Pediatric Surgical Evaluation and Counseling on a Parent's Choice of Pregnancy Termination", Twenty-second Annual Meeting of the International Fetal Medicine and Surgery Society, Charleston, SC [*Invited Lecture*]
- 2006 "Fetal Cardiac Surgery", International Fetal Medicine and Surgical Society, June 11-15 2006, Mauna Kea, HI [*Invited Lecture*] 2006
- 2007 "Fetal Diagnosis and Treatment in the United States – An Overview", Maternal Fetal Academic Conference, Hubei Women's and Children's Hospital, Wuhan, People's Republic of China [*Invited Lecture*]
- 2007 "Open Fetal Surgery", Maternal Fetal Academic Conference, Hubei Women's and Children's Hospital, Wuhan, People's Republic of China [*Invited Lecture*]

2007 “Minimally Invasive Fetal Surgery”, Maternal Fetal Academic Conference, Hubei Women’s and Children’s Hospital, Wuhan, People’s Republic of China [*Invited Lecture*]

2007 “Overview of Fetal Surgery”, Women and Children’s Conference, King Faisal Hospital, Riyadh, Saudi Arabia [*Invited Lecture*]

2007 “Open Fetal Surgery Indications and Techniques” Women and Children’s Conference, King Faisal Hospital, Riyadh, Saudi Arabia [*Invited Lecture*]

2007 “Minimally Invasive Fetal Surgery”, Women and Children’s Conference, King Faisal Hospital, Riyadh, Saudi Arabia [*Invited Lecture*]

2008”Exit to ECMO for CDH”, 3<sup>rd</sup> Annual Advances in Fetology Conference, Cincinnati [*Invited Lecture*]

2008”Fetal Chest Masses”, 3<sup>rd</sup> Annual Advances in Fetology Conference, Cincinnati [*Invited Lecture*]

### **3. Description of Teaching Award(s) Received**

1996            Sidney Farber House Staff Award for Excellence in Teaching  
Children's Hospital, Boston

1997            Kaiser Award for Excellence in Teaching Nomination  
University of California, San Francisco

### **E. Report of Clinical Activities**

1999-            Pediatric Surgery, Fetal Surgery Children's Hospital  
Clinical Activity Description: General pediatric surgery practice based at Children’s Hospital. I perform routine pediatric surgical procedures as well as correction and amelioration of complex anomalies. My practice has particular emphasis on neonatal anomalies and prenatal management of fetal anomalies- particularly abdominal, anorectal, thoracic, and airway anomalies. I have developed expertise in the treatment of congenital diaphragmatic hernia, neck tumors, mediastinal masses, and complex developmental anomalies. I am the director of the Fetal Treatment Center based at Children’s Hospital and work closely with the high-risk obstetric services at the Harvard hospitals. We are currently designing and implementing a multi-institutional multi-disciplinary fetal diagnosis and treatment program. My emphasis is on the fetal surgical treatment of severe and life threatening congenital diseases.

### **Part III: Bibliography**

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12. Jennings RW, Adzick NS, Longaker MT, Lorenz HP, Harrison MR. Radiotelemetric fetal monitoring during and after open fetal operation. *Surg Gynecol Obstet*. 1993; 176(1):59-64.

13. Harrison MR, Adzick NS, Flake AW, Jennings RW. The CDH two-step: a dance of necessity. *J Pediatr Surg.* 1993; 28(6):813-6.
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## **Proceedings of Meetings**

1. Jennings RW. Recent problems in fetal surgery. In: Proceedings of the 8th Annual Fukuoka International Symposium on Perinatal Medicine; 1997.
2. Wilkins-Huang L, Jennings RW, Ponkey SE. Fetal Therapy. In: Sokol, RJ. ACOG Update Program; 2001.

### **Reviews/Chapters/Editorials**

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2. Jennings RW, Adzick NS, Harrison MR. Fetal surgery. In: Atwell JD, Burge DM, Freeman NV, Griffeths M (eds): Surgery of the Newborn. London: Churchill-Livingstone; 1991. p. 320-331.
3. Jennings RW, Hunt TK. Overview of Postnatal Wound Healing. In: Adzick NS, Longaker MT (eds): Fetal Wound Healing. New York: Elsevier Scientific; 1991. p. 25-53.
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### **NonPrint Materials**

1. Jennings RW, Albanese CT, Harrison MR. Anterior cervical approach for repair of laryngotracheoesophageal cleft. 1997. (Poster).
2. Graf JL, Strear C, Housley HT, Albanese CT, Jennings RW, Harrison MR. The antegrade continence enema (ACE) procedure: an update. 1997. (Poster).
3. Graf JL, Lipschutz GS, Farmer DA, Kitterman JA, Jennings RW, Albanese CT, Harrison MR. Fetal resuscitation: Back from the brink before birth. 1997.(Poster).
4. Graf JL, Beech TR, Jennings RW, Albanese CT, Harrison MR. Successful fetal saccrocygeal teratoma resection in a hydroptic fetus. 1997. (Poster).
5. Graf JL, Lipschutz GS, Albanese CT, Jennings RW, Harrison MR. Intraluminal nitroglycerin greatly reduces intestinal injury in a rabbit model of necrotizing enterocolitis. 1997.(Poster).

6. Housley TH, Wilkinson CC, Delgado E, McVay C, Jennings RW. Creation of fetal myelomeningocele induces skeletal anomalies. 1998. (Poster).
7. Riedlinger WFJ, Vargas SO, Jennings RW, Estroff J, Barnewolt C, Allmendinger N, Kozakewich HPW. Society for Pediatric Pathology. Bronchial Atresia is common to sequestration, intralobar sequestration, cystic adenomatoid malformation, and lobar emphysema. 1998. (Poster).
8. Jennings RW. EXIT procedure for fetal airway obstruction. 1998. (Poster).
9. Fauza DO, Jennings RW. Controlled Fetal Delivery in Fetal Surgery. Videotape of the technical principles of controlled fetal delivery and fetal intervention in humans, for educational and documentary purposes. 2001.
10. Carol S. Barnewolt, M.D., Shaun M. Kunisaki, M.D., Dario O. Fauza, M.D., Luanne P. Nemes, RN, MS, PNP, Judy A. Estroff, M.D., Russell W. Jennings, M.D. Percent predicted lung volumes as measures on fetal magnetic resonance imaging: a useful biometric parameter for risk stratification in congenital diaphragmatic hernia. 2006. (Poster).

## **Patents**

1. Monitoring Uterine Contractions by Radiotelemetric Transmission. US patent 5,373,852. 1994 Dec 24.
2. Method for Performing a Gastric Wrap of the Esophagus for Use in Esophageal Reflux. US Patent 5,403,32. 1995 Apr 4.
3. Monitoring Fetal Characteristics by Radiotelemetric Transmission. US Patent 5,431,171. 1995 Jul 11.
4. Methods and Agents for Control and Management of Labor During Pregnancy. US Patent 5,508,045. 1996 May 16.
5. Method for Monitoring Fetal Characteristics by Radiotelemetric Transmission. US Patent 5,538,005. 1996 Jul 23.

## **Abstracts**

1. Jennings RW. Bronchial Atresia: the hidden mortality within a spectrum of prenatally diagnosed lung masses. American Pediatric Surgical Association, 36th Annual Meeting. 2005.
2. Melissa J. Hayward, M.D., Virginia Kharasch, M.D., Catherine Sheils, M.D., Sandra Friedman, M.D., Mary-Jo Dunleavy, R.N., Sherri Utter, RND, David Zurakowski, Ph.D., Russell Jennings, M.D., Jay M. Wilson, M.D. Predicting inadequate long-term lung development in children with congenital diaphragmatic hernia: an analysis of longitudinal changes in ventilation and perfusion. American Pediatric Surgical Association 37th Annual Meeting, Hilton Head, SC. 2006.