CURRICULUM VITAE

November 2013

WILLIAM G. MACKENZIE, M.D.

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Citizenship:	Professor of Orthopaedic Surgery Jefferson Medical College of Thomas Jefferson University 1020 Walnut Street Philadelphia, PA 19107-5587 Canadian U.S permanent Visa

Education:

1974	B.Sc. University of British Columbia (Biology)
1980	M.D. University of British Columbia

Post Graduate Training/Fellowship Appointments:

Internship (Res.1) – McGill University, Montreal PQ
Resident Orthopaedic Surgery – University of British Columbia,
Vancouver B.C.
Fellowship in Pediatric Orthopaedic Surgery – Alfred I. duPont Institute,
Wilmington, DE
Fellow of the Royal College of Physicians and Surgeons of Canada

Faculty Appointments:

1991 –2013	Assistant Professor, Thomas Jefferson Medical College
2013 -	Professor of Orthopaedic Surgery, Thomas Jefferson Medical College

Hospital and Administrative Appointments:

1988-1993	Pediatric Orthopaedic Surgeon, British Columbia Children's Hospital
	Vancouver B.C.
1993 - 2010	Alfred I. duPont Hospital for Children of the Nemours Foundation
	1994-2010 - Director of Clinical Fellowship Program, Department of
	Orthopaedics
	2000-Present- Co-Director, Muscular Dystrophy Association Clinic
	2004-2006 - Acting Chairman, Department of Orthopaedics
	2006-Present- Chairman, Department of Orthopaedics

Specialty Certification:

1987	Fellow of the Royal College of Physicians and Surgeons of Canada
1993	American Board of Orthopaedic Surgery Board, Certified; Recertified: 2003
	Recertified: 2013
2003	Fellow American College of Surgeons

Licensure:

British Columbia Delaware Pennsylvania

Honors and Awards:

1976	The Lois Lipsey Toohill Scholarship
1979	A. E. Trites Memorial Scholarship
1983	Orthopaedic Days Resident Paper - 1st prize
1985	Orthopaedic Days Resident Paper - 1st prize
1986	Johnson & Johnson Educational Orthopaedic Bursary
1989	Nominated by the Third Year Class for 1989/90 Medical Undergraduate Teaching
	Excellence Award
1997-2003	Listed in Delaware Today's Top Doctor Edition
1997	"Best Doctor in America"
2002	May, Listed in Philadelphia Magazine's Top Doctor Edition
2002-2003	Consumer Guide "Guide to America's Top Surgeons"
2004-2005	Consumer Guide "Guide to America's Top Surgeons"
2005	"Best Doctors in America"
2007-2008	"Best Doctors in America"
2008	Consumers' Research "Guide to America's Top Orthopedists"
2009	"Best Doctors in America"
2010-2011	"Best Doctors in America"
2012 -	"Best Doctors in America"
2013-	"The Shands/MacEwen Endowed Chair of Orthopaedic Surgery"

Memberships in Professional and Scientific Societies:

National and International Societies:

College of Physicians and Surgeons of British Columbia (1987) Royal College of Physicians & Surgeons of Canada (1987) Canadian Orthopaedic Association, Special Committee on Public Relations Pediatric Orthopaedic Society of North America Chairman, Bylaws Committee 2007 Chairman, Public Relations Committee 2001 Chairman, One Day Course 2004 Board of Directors - 2011 Quality, Safety, Values Initiative Committee – 2011 Corresponding Members Committee - 2011 Awards Committee - 2011 Eastern Orthopaedic Association American College of Surgeons American Academy of Orthopaedic Surgeons **Public Education Committee** American Medical Association Little People of America, Inc. Medical Advisory Board - 1995-2006 Chairman, Medical Advisory Board 2006 - Present Dwarf Athletic Association of America Medical Director - 1995 - Present Limb Lengthening and Reconstruction Society - ASAMI Program Chairman - 2003, 2004, 2005 President - 2004-2005, Chairman, Nomination Committee - 2005-Present Council of Musculoskeletal Specialty Societies (2004-2005) American Orthopaedic Association 2007 European Pediatric Orthopaedic Society 2009 International Federation of Pediatric Orthopaedic Surgeons International Pediatric Orthopaedic Think Tank (IPOTT) 2010

Local Societies:

Philadelphia Orthopaedic Society Delaware Society of Orthopaedic Surgeons (2000 - 2006) Program Chair Annual Meeting 2000-2005 Medical Society of Delaware Program Chairman, Annual Meeting 2001-2005

National Scientific Committees:

2010 - CDC, National Center on Birth Defects & Developmental Disabilities for the Duchenne Muscular Dystrophy care considerations project.

Professional and Scientific Committees:

Blood Utilization Review Committee, Alfred I. duPont Hospital for Children Institutional Review Board Committee, Alfred I. duPont Hospital for Children (1994-Present) Animal Care and Use Committee, Alfred I. duPont Hospital for Children (1994-Present) Credentials Committee, Alfred I. duPont Hospital for Children Graduate Medical Education Committee, Alfred I. duPont Hospital for Children Surgical Executive Committee, Alfred I. duPont Hospital for Children Hospital Education Committee, Alfred I. DuPont Hospital for Children Medical Executive Committee, Alfred I. duPont Hospital for Children Surgical Services Committee, Alfred I. duPont Hospital for Children Public Relations Committee, past Chairman, Pediatric Orthopaedic Society of North America One Day Course Committee, past Chairman, Pediatric Orthopaedic Society of North America Secretary Council, Pediatric Orthopaedic Society of North America Bylaws Committee, Chairman, Pediatric Orthopaedic Society of North America (2005-Present) Nomination Committee, Chairman, Limb Lengthening and Reconstruction Society – (2005-Present) Program Committee, Chairman, Delaware Society of Orthopaedic Surgeons (2000-2005) Program Committee, Delaware Society of Orthopaedic Surgeons (2000-2006)

Editorial Positions:

Editorial Board

Clinics in Orthopedic Surgery Journal of Children's Orthopaedics Reviewer, Journal of Pediatric Orthopaedics Reviewer, <u>Clinical Orthopaedics and Related Research</u> Ad Hoc Reviewer, <u>Journal of Orthopaedic Research</u> Ad Hoc Reviewer, <u>Acta Orthopaedica</u>

Academic Committees at the University of Pennsylvania and Affiliated Hospitals:

Major Teaching and Clinical Responsibilities:

Clinical Fellowship Program, Director CORE Pediatric Orthopaedic Lecture Series Alistair Younger, MD Advisory Committee, member and mentor for Masters Thesis External Review, Cincinnati Children's Hospital, January 2010 Pediatric Cervical Spine: Current Concepts and Techniques of Management, AAOS 2011

Lectures by Invitation:

Local:

May 12, 1982 Mackenzie, W.G., McGraw, R.W. "Review of radial head replacement arthroplasty in rheumatoid arthritis." UBC Orthopaedic Days.

June 22, 1983 Mackenzie, W.G., Shim, S.S., Day, B. "The blood and nerve supply of the knee's menisci in man." UBC Orthopaedic Days.

May 30, 1984 Mackenzie, W.G., McGraw, R.W., McEwen, J.A., Fung, B. "Evaluation of soft tissue pressures in the thigh under the tourniquet cuff." UBC Orthopaedic Days.

June 12, 1984 Mackenzie, W.G., Shim, S.S., Day, B., Leung, G. "The blood and nerve supply of the human menisci." Can. Orthopaedic Research Society, Winnipeg MN.

June 20, 1985 Mackenzie, W.G., Shim, S.S., Day, B. "The Innervation of human knee menisci." UBC Orthopaedic Days.

June 12, 1986 Mackenzie, W.G., Morton, K.S. "Histiocytosis X." UBC Orthopaedic Days.

March 25, 1988 Handsworth Secondary School, North Vancouver, British Columbia Spine Surgery.

April 18-22, 1988 11th Annual Post Graduate Review in Pediatrics. "Diagnosis and management of common pediatric fractures." The University of British Columbia.

June 14, 1988 "Modern trends in Orthopaedic Surgery." Children's Hospital - Physiotherapy Department.

June 23-24, 1988 Orthopaedic management of neuromuscular disorders. Muscular Dystrophy Association of Canada, Vancouver, B.C.

October 1988 Scoliosis. Annual Royal Columbian Hospital Update Seminar.

October 24, 1988 Department of Rehabilitation Medicine, University of British Columbia, Lecture - Scoliosis.

March 2, 1989 "Leg length discrepancy in children." University of British Columbia.

March 10, 1989 British Columbia Children's Hospital Emergency Trauma Workshop.

April 24-28, 1989 12th Annual Post Graduate Review in Pediatrics. British Columbia Children's Hospital. "Diagnosis and management of common fractures."

August 31, 1989 Pediatric Resident Rounds, British Columbia Children's Hospital. "Common fractures in children."

September 11, 1989 St. Vincent's Hospital Grand Rounds. "Potpourri of Pediatric Orthopaedics."

October 16, 1989 British Columbia Children's Hospital. Emergency Nurses Inservice, Orthopaedic Trauma.

December 5, 1989 Lion's Gate Hospital, Pediatric Orthopaedics.

February 2, 1990 Richmond General Hospital, Pediatric Orthopaedics Grand Rounds.

February 22, 1990 University of British Columbia, Pediatrics - Spring Term 1990. "Orthopaedic Aspects of Muscular Dystrophy."

March 9, 1990 University of British Columbia, Family Practice Resident's Day, Pediatric Orthopaedics.

British Columbia's Children's Hospital, Physiotherapy Pediatric Interest Group Meeting. "Ilizarov Techniques." "New Trends in Back Surgery for Muscular Dystrophy Patients." "New Trends in Surgery for Cerebral Palsy Patients."

March 15, 1990 British Columbia's Children's Hospital, "Osteogenic Sarcoma."

April 23, 1990 13th Annual Post Graduate Review in Pediatrics, British Columbia Children's Hospital. "Bone and Joint Infections in Children."

April 28, 1990 Little People of British Columbia Association. "Limb lengthening for short stature."

October 2, 1990 Annual Refresher in Family Medicine 1990. "Hip Problems in the Newborn." Royal Columbian Hospital.

October 24, 1990 Pediatric Nurses' Group. "Leg Lengthening with the Ilizarov Apparatus."

November 24, 1990 Allan McGavin Sports Medicine Centre. Grey Cup Fall Symposium. "Common foot disorders in the young athlete."

January 9, 1991 Vancouver General Hospital. Department of Orthopaedics Grand Rounds. "Legg Perthes disease and osteochondroses."

March 16, 1991 G.F. Strong Rehabilitation Centre 3rd Annual Pediatric Emergency Update. "Orthopaedic emergency problems."

April 18, 1991 Division of Continuing Education in the Health Sciences and the Sunny Hill Hospital for Children. Conference on Traumatic Brain Injuries in Children. "Orthopaedic aspects of brain injured children."

April 24, 1991 British Columbia's Children's Hospital Pediatric Nurses Inservice. "Pediatric application of the Ilizarov Apparatus."

June 14, 1991 The Cerebral Palsy Association of British Columbia. "Children and youth with development motor disabilities: Meeting the challenge".

April 23, 1992 Resident Lecture. Department of Orthopaedics. "Congenital Limb Defects and Amputations."

May 7, 1992 Resident Lecture, University of British Columbia. "Epiphyseal injuries."

August 15, 1992 Annual Meeting of the Little People's Association of British Columbia. "Limb lengthening." Delta Pacific Resort and Conference Centre, Richmond, B.C.

September 25, 1992 "Common Orthopaedic Injuries - Pitfalls in Management." 1st Annual Pediatric refresher for General Practitioners. University of British Columbia.

September 8, 1993 "Upper Extremity Fractures in Children," Primary Care Physician Seminar, The Alfred I. duPont Institute.

October 2, 1993 "Spinal Muscular Atrophy - Orthopaedic Management," The Alfred I. duPont Institute.

November 12, 1993 "Update in Limb Lengthening," Delaware Society of Orthopaedic Surgeons Annual Meeting.

March, 1994 "Orthopaedic Problems in the Newborn," Medical Center of Delaware, Wilmington, Delaware.

June 11, 1994 "Myotonic Dystrophy", The Alfred I. duPont Institute.

October 18, 1994 "Orthopaedic Problems in the First Year of Life," Medical Center of Delaware.

November 5, 1994 "Treatment and Research in Duchenne and Becker Muscular Dystrophy: A Seminar for Families", Alfred I. duPont Institute

September 30, 1995 "Spinal Muscular Atrophy: A Seminar for Families," Alfred I. duPont Institute.

October 12, 1995 "Orthopaedic Problems in the First Year of Life," Kent General Hospital.

January 24, 1996 "Skeletal Growth Discrepancies and Their Management," Pediatric Grand Rounds, The Alfred I. DuPont Institute.

November 27, 1996 "Update on Skeletal Dysplasias," Pediatric Grand Rounds, The Alfred I. duPont Institute.

December 14, 1996 "Friedreich's Ataxia," A Seminar for Patients and Their Families. Alfred I. duPont Institute.

September 27, 1997 Duchenne/Becker Muscular Dystrophy Update, The Alfred I. duPont Institute.

October 16, 1997 Pediatric Grand Rounds, "Common Orthopaedic Problems in the Newborn," Medical Center of Delaware.

September 25, 1999 "Spinal Muscular Atrophy: A Seminar for Families," Alfred I. duPont Hospital for Children.

November 1, 2000 A.I. duPont Hospital for Children, Department of Nursing Continuing Education, "Limb Length Discrepancies".

January 3, 2001 Pediatric Grand Rounds, A.I. duPont Hospital for Children, "Intoeing, Out toeing, Knock-Knees and Bowlegs".

July 24-27, 2003 "Orthopaedic Issues in Costello Syndrome," The 3rd International Costello Syndrome Conference – AI duPont Hospital for Children.

November 2003 Neuromuscular Scoliosis Seminar, Scoliosis Research Society, A. I. duPont Hospital for Children.

December 29, 2003 Orthopaedic Teaching Conference, Pediatric Residency Program, A. I. duPont Hospital for Children.

September 21, 2006 "Selected Lower Extremity Problems in Skeletal Dysplasia", Presidential Lecture at the Pediatric Orthopaedic Club of New York, New York, NY.

August 11, 2007 Fourth Annual Ullrich/Bethlem Patient and Family Meeting (UCMD/BM), The Children's Hospital of Philadelphia, Philadelphia, PA.

September 12, 2008 Pediatric Update and Review Course, "Pediatric Orthopaedic Review", A. I. DuPont Hospital for Children.

October 2, 2009 Invited Presenter, NapNap Nursing Lecture, Bala Cynwd, PA

October 10, 2009 Invited Presenter Delaware Orthopaedic Symposium, "Orthopaedic Care in the Year 2025" Christiana Hospital, Christiana, DE

January 16, 2010 Invited Presenter, Christiana Care Orthopaedic Department Planning Meeting, "The Potential of Collaboration on Transitional Care and Sports Care. Wilmington Country Club

October 29, 2010 Delaware Orthopaedic Symposium, Newark, DE

July 21, 2012 – Medical Panel, Morquio Symposium, Wilmington, DE

October 13, 2012 – Invited Presenter, Dwarfism Awareness – "The Child with Skeletal Dysplasia", Newark, DE

July 20, 2013 - Medical Panel, Morquio Symposium, Wilmington, DE

National:

March 29, 1984 Day, B., Shim, S.S., Mackenzie, W.G., Leung, G. "The vascular and nerve supply of the human menisci." Arthroscopy Assn. of North America, New Orleans LA.

June 1986 Mackenzie, W.G., Shim, S.S., Day, B., Leung, G. "The innervation of the human knee menisci." Canadian Orthopaedic Research Society, Edmonton, Alberta.

1987 Bowen JR, Harcke T, Mandell G, Hartzell CR, Mackenzie WG: Percutaneous epiphysiodesis: A new technique". AAOS San Francisco Exhibit

May 20-23, 1987 Mackenzie, W.G. and Morton, K.S. "Eosinophilic granuloma of bone." North Pacific Orthopaedic Society 62nd Anniversary Meeting. Coeur d'Alene, Idaho.

May 5, 1988 Mackenzie, W.G., Bassett, G.S., Mandell, G.A., Scott, C.I., Bowen, J.R. "Avascular necrosis of the hip in multiple epiphyseal dysplasia." Pediatric Orthopaedic Society of North America, Colorado Springs, Colorado Annual Meeting.

"A new index of long bone deformity predicting outcome after pediatric forearm fracture." Canadian Orthopaedic Association Meeting, Toronto (Abstracted in Journal of Bone and Joint Surgery).

March 1991 58th Annual Meeting of the American Academy of Orthopaedic Surgeons, Anaheim, CA. "Forces measured during femoral lengthening in children." (Abstracted in the Journal of Bone and Joint Surgery).

April 1991 American Orthopaedic Association Resident's Conference, Kansas City. "The outcome after pediatric forearm fracture reduction." (Abstracted in the Journal of Bone and Joint Surgery).

April 24, 1991 Canadian Resident's Association Conference, Hamilton, ON. "The remodeling potential of the pediatric forearm after fracture." (Abstracted in the Journal of Bone and Joint Surgery).

May 12-15, 1991 Mackenzie, W.G., Younger, A.S., Tredwell, S.J. "Remodeling of Pediatric forearm fractures." Pediatric Orthopaedic Society of North America Annual Meeting, Dallas, TX,

June 2-6, 1991 Mackenzie, W.G., Younger, A.S., Morrison, J.B. "Forces during femoral lengthening in children." Canadian Orthopaedic Association Annual Meeting. Calgary, AB (Abstracted in the Journal of Bone and Joint Surgery).

June 1991 Canadian Orthopaedic Association Annual Meeting, Calgary, AB. "The remodeling potential of the midshaft and distal pediatric forearm after fracture." (Abstracted in the Journal of Bone and Joint Surgery).

1991 Canadian Orthopaedic Association, "Intramedullary nailing of adolescent femoral fractures." Calgary, Alberta.

1991 Mackenzie, W.G., Younger, A.S., Morrison, J.B. "Forces measured during femoral lengthening on children." American Academy of Orthopaedic Surgeons, Anaheim, CA.

November 1991 Orthopaedic Trauma Association, Seattle, WA. "The remodeling potential of the Pediatric forearm after fracture."

February 23, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., Taylor G., "The Changes in Sheep Articular Cartilage After Ilizarov Tibial Lengthening," A.S.A.M.I.

February 24, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., "The Biomechanical Nature of Distraction Callus Generated During Ilizarov Tibial Lengthening in Sheep," American Academy of Orthopaedic Surgeons, New Orleans, Louisiana.

February 15, 1995 Sharma, M., Mackenzie, W.G., Bowen J. R., "Severe Tibial Growth Retardation After Limb Lengthening for Total Fibular Hemimelia." A.S.A.M.I., Orlando, Florida.

March 17, 1995 "Muscular Dystrophy" and "Canadian Orthopaedics," Walter Reed Army Medical Center.

May 1-4, 1995 Tredwell, S.J., Sabharwal, S., Beauchamp, R.D., "Management of Pulseless Pink Hand in Pediatric Supracondylar Fractures of the Humerus." POSNA 1995 Annual Meeting, Miami, Florida.

May 17, 1995 Philadelphia College of Osteopathic Medicine.

December 14, 1995 The New York Orthopaedic Hospital at Columbia-Presbyterian Medical Center, New York, New York, Visiting Professor.

February 22-26, 1996 Mackenzie, W.G., Slomczykowski, M., Stern, G., "The Assessment of Acetabular Volume after the Pemberton Osteotomy" poster presentation. AAOS 1996 Annual Meeting, Atlanta, Georgia.

March 1, 1996 Grand Rounds "Neuromuscular Disorders in Children," University Hospital, Baltimore, Maryland.

November 2-3, 1996 Little People of America Regional Meeting, Wilkes-Barre, Pennsylvania.

February 12, 1997 Mackenzie, W.G., Choi, I.H., Bowen, J.R., Lipton, G. E., Jay Kumar, S., "Significance of a Wedge Shaped Distal Tibial Epiphysis in the Pathogenesis of Equinovalgus Deformity of the Foot and Ankle in Fibular Hemimelia After Tibial Lengthening." Presented at A.S.A.M.I.

February 13-17, 1997 Mackenzie, W.G., Choi, I.H., Bowen, J.R., Lipton, G.E., Jay Kumar, S., "Significance of a Wedge Shaped Distal Tibial Epiphysis in the Pathogenesis of Equinovalgus Deformity of the Foot and Ankle in Fibular Hemimelia After Tibial Lengthening." Presented at AAOS Annual Meeting, San Francisco, CA.

July, 1997 Little People Association Meeting, Atlanta, Georgia, multiple lectures.

January 9, 1998 Ohio University College of Osteopathic Medicine Residency Programs Advisory Committee Education Day, Columbus, Ohio, Visiting Professor.

March 19-23, 1998 Szoke, G., Bowen, J.R., Mackenzie, W.G., "Predicting Skeletal Maturity in Patients with Unilateral Fibular Hemimelia," submitted to AAOS 65th Annual Meeting, New Orleans, LA.

March 19-3, 1998 Leet, A.I., Szoke, G., Mackenzie, W.G., "Triradiate Injury After Pemberton Osteotomy," submitted to AAOS 65th Annual Meeting, New Orleans, LA.

March 19-23, 1998 Bowen, J.R., Choi, I.H., Lipton, G., Mackenzie, W.G., Jay Kumar, S. "Wedge Shaped Distal Tibial Epiphysis in the Pathogenesis of Equinovalgus Deformity of the Foot and Ankle in Tibial Lengthening for Fibular Hemimelia." Presented at American Academy of Orthopaedic Surgeons, New Orleans, LA.

May 7-9, 1998 Tuten, H.R., Keeler, K.A., Gabos, P.G., Zionts, L.E., Mackenzie, W.G., "Post-Traumatic Tibia Valga in Children: A Long Term Follow-Up." Presented at the P.O.S.N.A. Annual Meeting, Cleveland, Ohio.

May 7-9, 1998 Leet, A.I., Szoke, G., Harke, T.H., Mackenzie, W.G., "Triradiate Injury After Pemberton Osteotomy." Presented at the P.O.S.N.A. Annual Meeting, Cleveland, Ohio.

July 4-7, 1998 Little People Association Meeting, Los Angeles, California, multiple lectures.

November 17, 1998 Grand Rounds, Walter Reed Medical Center, Washington, D.C.

November 20, 1998 Atlantic City Medical Center Department of Medical Education Combined Clinical Conference, Atlantic City, New Jersey, Visiting Professor.

February 4, 1999 American Academy of Orthopaedic Surgeons, Instructional Course Lecturer, "Deformity Correction and Limb Lengthening with External Fixation".

March 4, 1999 Ken Crest Services "Children Who are Medically Complex Or Technology Dependent: Safe at Home, Safe in the Community," Philadelphia, PA.

April 20, 1999 Community Medical Center, "Pediatric Elbow and Ankle Injuries," Scranton, PA.

May 16, 1999 POSNA, One Day Course, "Angular Deformities," Lake Buena Vista, FL, Lecturer.

May 26-30, 1999 Nemours International Orthopaedic Symposium, "Childhood Muscular Dystrophies," "Lengthening in Pathological Bone", "Congenital Tibial Deficiency", Chicago, IL.

February 1, 2000 Walter Reed Army Medical Center, "Lower Extremity Deformities Associated With Common Skeletal Dysplasias".

March 16, 2000 American Academy of Orthopaedic Surgeons, "General Complications of Lower Extremity Lengthening: Prevention and Management", Instructional Course - Lecturer.

May 23-28, 2000 International Pediatric Orthopedic Symposium, "Clinical Management of Skeletal Dysplasias", "Congenital Tibial and Fibular Deficiency."

August 4-6, 2000 The Nemours Foundation Cape Cod Conference on Pediatrics, "Children's Common Fractures", "Toeing In and Out, Bow Legs, Knock Knees and Flat Feet", "Spinal Deformity in Childhood."

September 28, 2000 SRS Traveling Fellows, "Neuromuscular Scoliosis Associated with Spinal Muscular Atrophy," The Children's Hospital of Philadelphia.

November 16-18, 2000 Walter Reed Army Medical Center: "Basic Ilizarov Methods", "Limb Lengthening Analysis & Strategy", "Avoiding Complication & Physiology during Limb Lengthening."

November 30, 2000 New Jersey Medical School, Department of Orthopaedics "Principles of Assessment and Management of Muscle and Nerve Disorders in Children".

December 18, 2000 National Naval Medical Center, Bethesda, Maryland, "How to Approach Limb Length Discrepancy."

January 10-13, 2001 "The Hand in Ellis-Van Creveld Syndrome", Poster Presentation at American Association for and Surgery, San Diego, CA.

February 28, 2001 American Academy of Orthopaedic Surgeons, "Lower Limb Lengthening," Instructional Course – Lecturer.

March 14, 2001 Pediatric Kaleidoscope: Focus on Clinical Challenges, "Intoeing, Out toeing, Knock-Knees and Bowlegs".

May 1-5, 2001 Mackenzie, W.G., Kelleher, Peter, B.S., Abu-Sneineh, Kareem, "Genu Varum in Achondroplasia". Poster Presentation at POSNA.

September 29, 2001 2001 Bryn Mawr Hospital, "Primarily Orthopaedics Conference", "Management of Common Pediatric Orthopaedic Problems."

February 15, 2002 AAOS, "Lower Limb Lengthening," Instructional Course Lecture.

April 25-27, 2002 Smith & Nephew: Essentials of Ilizarov & Comprehensive Ilizarov Solutions, "Post-operative Management: Physical Therapy," "Basic Femoral Construct," "Complications."

June 7-9, 2002 Limb Lengthening and Reconstruction Society: ASAMI-NA, "Essentials for Limb Lengthening, Limb Reconstruction and External Fixation."

July 19, 2002 EBI Annual Pediatric Forum, "Osteotomies in Achondroplasia," "Errors in Lengthening."

October 5, 2002 Main Line Health: Primarily Orthopaedics Conference, "Common Pediatric Orthopaedic Problems."

October 15, 2002 Walter Reed Army Medical Center: "Skeletal Dysplasias."

December 4-8, 2002 International Pediatric Orthopaedic Symposium: "Skeletal Dysplasias and Metabolic Disorders."

2003 Schwartz, D.M., Drummond, D., Bowen, J.R., Sestokas, A.K., Fan, D., Wierzbowski, L., Dormans, J., Mason, D., Mackenzie, W.G., Shah, S., Flynn, J., "Provocative Testing of Segmental Artery Feed to the Anterior Spinal Cord Prior to Ligation With Transcranial Electric Motor Evoked Potentials", presented at NAASA and SRS: .

May 1, 2003 "Anticipating, Diagnosing and Managing Growth Arrest in the First Year After Injury." Presented at POSNA Pediatric Orthopaedic Trauma State of the Art 2003 Innovations and Controversies.

June 12, 2003 "Skeletal Dysplasias," Presented at St. Luke's Grand Rounds, New York, NY.

October 4, 2003 "Common Pediatric Orthopaedic Problems," Primarily Orthopaedics Conference – Main Line Health.

December 3-7, 2003 "Managing Ankle Valgus in Congenital Pseudarthrosis of the Tibia," 6th Annual International Pediatric Orthopaedic Symposium, San Diego, CA.

December 3-7, 2003 "When and How to Manage Tibia Vara in Achondroplasia," 6th Annual International Pediatric Orthopaedic Symposium, San Diego, CA.

December 10, 2003 "Anticipating, Diagnosing and Managing Growth Arrest in the First Year After Injury", "Congenital Femoral Deficiency," Statewide Campus System Orthopaedic Conference – Pediatric, Troy, MI, Visiting Professor.

February 27, 2005 "Evaluation and Management of Skeletal Dysplasia", AAOS Instructional Course.

February 27, 2005 "New Methods of Limb Lengthening and Reconstruction", AAOS Instructional Course.

April 20-22, 2005 "Skeletal Age in Fibular Hemimelia", National Orthopaedic Leadership Conference, Washington, DC.

July 29-31, 2005 Muharrem Inan, MD; Changhoon Jeong, MD; Gilbert Chan, MD; William G. Mackenzie, MD; Joe Glutting PHD. "Analysis of Lower Extremity Alignment in Achondroplasia: Interobserver Reliability and Intraobserver Reproducibility," 15th Annual Scientific Meeting of the Limb Lengthening and Reconstruction Society: ASAMI-North America, New York, NY.

July 29-31, 2005 Muharrem Inan, MD; Changhoon Jeong, MD; Gilbert Chan, MD; William G. Mackenzie, MD; Joe Glutting, PHD. "Dynamic Lower Extremity Alignment in Children with Achondroplasia" 15th Annual Scientific Meeting of the Limb Lengthening and Reconstruction Society ASAMI-North America, New York, NY.

July 29-31, 2005 Muharrem Inan, MD; Changhoon Jeong, MD; Gilbert Chan, MD; William G. Mackenzie MD; Joe Glutting PHD " The Use of the Physeal Line for Preoperative Deformity Planning In Skeletally Immature Patients: An MRI Study", 15th Annual Scientific Meeting of Limb Lengthening and Reconstruction Society: ASAMI-North America, New York, NY.

March 3-6, 2006 "Spine and Limb Problems with Skeletal Dysplasia", Little People of America, District 1 Spring Regional, Braintree, MA.

March 23, 2006 "Evaluation and Management of Skeletal Dysplasia", Instructional Course Lecture, AAOS Annual Meeting, Chicago, IL.

March 24, 2006 "Techniques for the Correction of Lower Extremity Angulatory Deformities in Children", Instructional Course Lecture, AAOS Annual Meeting, Chicago, IL.

September 21, 2006 "Selected Lower Extremity Problems in Skeletal Dysplasia", Presidential Lecture at the Pediatric Orthopaedic Club of New York, New York, NY.

November 10-12, 2006 "Post-Operative Management in Frame & Frame Removal", "Corticotomy Techniques", Essentials of External Fixation Course, Smith & Nephew, Inc., New York, NY.

January 11-14, 2007 "Post-Operative Management in Frame & Frame Removal", "Corticotomy Techniques", Essentials of External Fixation Course, Smith & Nephew, Inc., Keystone, CO.

February 14-18, 2007 "New Methods of Limb Lengthening and Reconstruction – Avoidance and Solutions to Complications", Instructional Course Lecture, AAOS, San Diego, CA.

February 14-18, 2007 "Evaluation and Management of Skeletal Dysplasia", Instructional Course Lecture (Moderator), AAOS, San Diego, CA.

February 14-18, 2007 Shah SA, Gallina JM, Mackenzie WG, Campbell JA: "Atlantoaxial Transarticular Screw Fixation in Pediatric Patients", AAOS, San Diego, CA.

February 14-18, 2007 "Correction of Blount's disease with external fixation", Limb Lengthening and Reconstruction Society: ASAMI-North America, Specialty Day, AAOS, San Diego, CA.

February 14-18, 2007 Symposium: Subtalar Alignment/Instability (Moderator), Limb Lengthening and Reconstruction Society: ASAMI-North America, Specialty Day, AAOS, San Diego, CA.

May 10-11, 2007 Oleika Lecture: "Skeletal Dysplasia - Evaluation and Management; Muscle Diseases in Children; Limb Length Discrepancy - Evaluation and Management; Congenital Lower Limb Deficiency, Lexington Shriners Hospital, Lexington, KY.

May 23-26, 2007 "Upper Cervical Fusion in Children With Morquio's Disease; Long Term Results", POSNA, Hollywood, FL.

July 1, 2007 "Dwarfs in Perspective: Limb Alignment and Lengthening", Little People of America National Conference, Seattle, WA.

July 1, 2007 "Orthopaedics I: Bowing and Other Limb Issues", Medical Workshop, Little People of America National Conference, Seattle, WA.

July 1, 2007 "Diagnosis Specific Workshop: SED, SEMD & Kniest Dysplasia", Little People of America National Conference, Seattle, WA.

September 19-22, 2007 "Treatment of Coxa Vara in Skeletal Dysplasia", Teton Valley Pediatric Orthopaedic Meeting, Driggs, ID.

October 4, 2007 "Skeletal Dysplasia: Assessment & Management", Orthopaedic Grand Rounds, Yale School of Medicine, New Haven, CT.

November 9 – 10,2007 "Essentials of External Fixation Course", Dana Point, CA.

January 10 – 13, 2008 Smith & Nephew "Essentials of External Fixation" "Basics of Deformity Analysis", Keystone, CO.

February 8, 2008 Smith & Nephew "Circle of Excellence External Fixation Advisory Team", Memphis, TN.

March 6-9, 2008 "New Methods of Limb Lengthening – Reconstruction: Avoidance of and Solutions to Complications", AAOS, San Francisco, CA.

March 6-9, 2008 "Angular Deformities in Children With Bony Dysplasias", Limb Lengthening and Reconstruction Society, Specialty Day, AAOS, San Francisco, CA.

April 29 – May 3, 2008 "Natural History of Early Thoraco-Lumbar Kyphosis in Children with Achondroplasia", POSNA, Albuquerque, NM.

May 1-3, 2008 "Shelf Acetabuloplasty Using Inner Table Iliac Bone Graft", Poster Presentation (#17), POSNA, Albuquerque, NM.

May 14, 2008 "Skeletal Dysplasia-Evaluation and Management" Grand rounds, Harvard Medical School, Boston, MA.

June 21-28, 2008 "Orthopaedics: Bowing and Other Limb Issues" LPA, Detroit, MI.

June 21-28, 2008 "Diagnosis Specific Workshop: SED, SEMD, Kniest Dysplasia and MED" LPA, Detroit, MI.

July 11-13, 2008 "Treatment of Angular Deformities in Children with Bone Dysplasia" 18th Annual Scientific Meeting of the Limb Lengthening & Reconstruction Society, Albuquerque, NM.

August 30, 2008 "Extensive Limb Lengthening for Achondroplasia" 18th Baltimore Limb Deformity Course, Baltimore, MD.

October 24 – 25, 2008 "Current Concepts and Techniques in Pediatric Trauma & Spine" Biomet, New York, NY.

December 3 – 7, 2008 "Tibia Vara, "Associated Problems that Can Affect Your Care of Children with Dysplasias and Syndromes", "Limb Deformity Correction for Achondroplasia, "Lower Extremity Surgery for Diastrophic Dysplasia", IPOS, Orlando, FL

January 9-10, 2009 Organizer and Invited Presenter, Smith & Nephew "Essentials of External Fixation Course" "Normal Tibia -General Post-Op Care" "Equinus Frames – Conclusions/questions" Scottsdale, AZ

January 14, 2009 Visiting Professor, University of Chicago, Grand Rounds, Chicago, IL.

January 26 – 28, 2009 MDA National Clinic Directors' Conference, Las Vegas, Nevada.

February 27-28, 2009 Invited Presenter, AAOS, Specialty Day "Deformity Correction in Metabolic Bone Disease" Las Vegas, NV

May 2, 2009 Invited Panel, LPA Spring Regional, Charlottesville, VA

May 22, 2009 Visiting Professor, Millar Day Symposium Shriners Hospital for Children, "Skeletal Dysplasia, Chicago, IL

July 4 – 10, 2009 Organized Medical Panels, Chaired, Medical Advisory Board Meeting, Little People of America national Conference, New York, NY

September 12, 2009 Invited Panel, Little People of America Regional Conference, Harrisburg, PA

September 25-27, 2009 Invited Panel, Little People of America Regional Conference, Indianapolis, IN

December 2 – 6, 2009 Invited Faculty 6th Annual International Pediatric Orthopaedic Symposium, "Case Based Discussion: Orthopaedic Issues", 'Complex Limb Deformity controversies: Case Based Discussions", Combined Deformity Correction and Modest Lengthening in Achondroplasia", "Management Pearls for Patients with Skeletal Dysplasias and Genetic Conditions – Moderator", Orlando, FL

January 29-30, 2010 Invited Reviewer, Cincinnati Children's Hospital Medical Center's Annual Scientific Review, Cincinnati, OH

March 10 – 12, 2010 Invited Presenter, American Academy of Orthopaedic Surgeons "Pediatric Cervical Spine: Current Concepts & Techniques of Management", "ICL Review – Spine Problems in Young Athletes", New Orleans, LA

March 30-April 2, 2010, Invited Presenter, Pediatric Grand Rounds Shriners Hospital for Children "Orthopaedic Aspects of Dwarfing Conditions", "LLD: Guidelines for Assessing and Planning Treatment", Salt Lake City, UT May 4-7, 2010 Invited Faculty, Pediatric Orthopaedic Society of North America, Spine Symposium "Pearls and Pitfalls of Halo Application", Waikoloa, Hawaii

May 8-9, 2010 Invited Panel, Little People of America Regional Conference, Honolulu, Hawaii

July 2-7, 2010 Invited Panel, Organized Medical Panels, Chaired Medical Advisory Board Meeting, Little People of America National Conference, Nashville, TN

September 18, 2010 Invited Panel, Little People of America District 3 Regional, Annapolis, MD

October 29, 2010 Visiting Professor, 7th Annual Fall Spine Symposium, Texas Scottish Rite Hospital, "Management of the Cervical Spine in Skeletal Dysplasia", "Thoracolumbar Deformity in Skeletal Dysplasia, Dallas, TX

November 2, 2010 Invited Keynote Speaker, 55th Carpenter Noon Lecture, "Diagnosis and Treatment of Childhood Skeletal Dysplasia, Villanova, PA

January 3, 2011 Guest Lecturer, Thomas Jefferson University Orthopaedic Lecture Series, "Skeletal Growth Dysplasia/Growth Plate Abnormalities", Philadelphia, PA

February 15 – 19, 2011 Invited Presenter American Academy of Orthopaedic Surgeon, 253 Pediatric Cervical Spine: Current Concepts and Techniques of Management, San Diego, CA

March 28, 2011 Invited Lecturer, Thomas Jefferson University Orthopaedic Lecture Series, "Neuromuscular Disorders", Philadelphia, PA

April 15-16, 2011 – Invited 2011 Lowman Visiting Professor, "Management of the Lower Extremity in Children with Skeletal Dysplasia", "Spine Deformity in Skeletal Dysplasia", Los Angeles, California

April 30, 2011 – Guest Faculty, Little People of America Northcoast Chapter Medical Symposium, "Neck and Cervical Spine Issues", "Bracing and Casting Opportunities for Spinal Deformities in Skeletal Dysplasias", Akron, Ohio

May 5 – 7, 2011 – Invited Visiting Professor, Portland Shriners Hospital, 50th Annuyal Dillehunt Memorial Lecture and Fellow Reunion, "Evaluation & Management of Neuromuscular Disorders in Children (non CP)", "Skeletal Dysplasia: Evaluation & Management of the Spine", Skeletal Dysplasia: Evaluation & Management of the Extremities", Portland, Oregon

May 7 – 9, 2011 – Invited Faculty, Biomarin-Morquio A Syndrome Multidisciplinary Summit, "Moderator, Musculo-Skeletal System", San Francisco, California

May 20, 2011 – Invited Visiting Professor for Grand Rounds, Hospital for Special Surgery, "Pediatric Spine Surgery in Skeletal Dysplasia", New York, New York

July 2-7, 2011 – Invited Panel, Organized Medical Panels, Chaired Medical Advisory Board Meeting, Little People of America National Conference, Anaheim, CA

September 22 – 24, 2011 – Invited Faculty Teton Valley Pediatric Orthopaedic Meeting, "Hip and Lower Extremities, Driggs, Idaho

October 19 – 22, 2011 – Attended International Pediatric Orthopaedic Think Tank Meeting, Sausalito, California

February 7 – 11, 2012 – Presenter, American Academy of Orthopaedic Surgeons, "Cervical Kyphosis", "Preoperative Traction/Halo Management", "Pearls, Pitfalls and Complications", San Francisco, CA

March 24, 2012 – Invited Panel, Little People of America District II Regional Conference, Pittsburgh, Pennylvania

May 16 – 19, 2012 – POSNA, Denver "Flexion Extension Cervical Spine MRI in Children with Skeletal Dysplasia – Is it safe and effective? W. Mackenzie, A. Dhawale, M. Demczko, C. Ditro, M.Bober, L. Grissom, J. Campbell, Denver, CO

May 25, 2012 - Visiting Professor, Connecticut Children's Alumni Day, Hartford, Connecticut

June 22, 2012 - Attended International Pediatric Orthopaedic Think Tank Meeting, Cleveland, OH

June 29 – July 4, 2012– Invited Panel, Organized Medical Panels, Chaired Medical Advisory Board Meeting, Little People of America National Conference, Dallas, TX

July 27 – 28, 2012 – Visiting Professor, 26th Annual National MPS Society, Boston, MA

September 14-15, 2012 – Visiting Professor, "Diagnosis and Management Principles in Skeletal Dysplasias", "Spinal Disorders in Skeletal Dysplasias", Limb Deformities in Skeletal Dysplasias", Children's Hospital Medical Center of Akron, Akron, OH

October 24, 2012 – Visiting Professor – Grand Rounds, University Medicine Dentistry of New Jersey, "Management of Neuromuscular Diseases – Non CP" Stratford, NJ

November 28 – December 1, 2012 – Invited Presenter, International Pediatric Orthopaedic Symposium (IPOS), "Syndromic Hip", "Complex Limb Deformity Solutions – Case Discussion", "Skeletal Dysplasia Principles and Management", Orlando, FL

March 19 – March 23, 2013 – American Academy of Orthopaedic Surgeons, "Prevalence of Scoliosis in Patients with Fontan Circlulation", Chicago, IL

April 2 – April 3, 2013 – Visiting Professor - Rainbow Babies and Children's Hospital, "Lower Extremities", "Skeletal Dysplasias", Cleveland, OH

June 30 – July 4, 2013 - Invited Panel, Organized Medical Panels, Chaired Medical Advisory Board Meeting, Little People of America National Conference, Washington, DC

September 12 – 15, 2013 – Invited Faculty, Teton Valley Pediatric Orthopaedic Meeting, "Hip Dysplasia in Primordial Dysplasia", Driggs, Idaho

International:

November 10-12, 1989 Scoliosis, Pediatric applications of the Ilizarov apparatus, Intoeing-Outtoeing and C.D.H. Yukon Medical Association Annual Meeting, Whitehorse, Yukon, Visiting Professor.

October 1991 Combined Meeting of the Orthopaedic Research Societies of Canada, Japan and USA. Banff, Alberta. "The remodeling potential fracture of the pediatric forearm after fracture" and "Forces during femoral lengthening in children". Poster Presentations

December 1991 12th International Congress of Biomechanics. Perth, Australia "Assessment of long bone angulation."

December 1991 12th International Congress of Biomechanics. Perth, Australia "Forces during femoral lengthening in children" Poster Presentation

October, 1992 Lance Richard Annual Memorial Lecture, Kelowna, Visiting Professor.

April 7-9, 1994 Ste. Justine Ilizarov Workshop, Montreal, Canada.

June 12, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., "The Biomechanical Nature of Distraction Callus Generated During Ilizarov Tibial Lengthening in Sheep," Canadian Orthopaedic Research Society, Winnipeg, Manitoba, Canada.

June 12, 1994 Younger A.S.E., Mackenzie W.G., Morrison J.B., Gosline J., Taylor G., "The Changes in Sheep Articular Cartilage After Ilizarov Tibial Lengthening," Canadian Orthopaedic Research Society, Winnipeg, Manitoba, Canada.

June 12-15, 1994 Younger, A.S.E., Mackenzie, W.G., "Assessment of Patient Information Systems in Duchenne Muscular Dystrophy: Computer versus the pamphlet." Canadian Orthopaedic Association, Winnipeg, Manitoba, Canada.

April 5, 1995 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

April 10-13, 1996 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

July 22-23, 1996 Capitulo de Ortopedia Infantil, Sociedad Colombi de Cirugia Ortopedica Y Traumatologia, Santafe de Bogota, Colombia, South America, Visiting Professor.

April 9-11, 1997 Ste. Justine Pediatric Orthopaedic Review Course, Shriner's Hospital, Montreal, Canada.

April 15-17, 1998 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

April 6-10, 1999 Ste. Justine Pediatric Orthopaedic Review Course and Ilizarov Workshop, Montreal, Canada.

October 28-29, 1999 Visiting Professor Annual Orthopaedic Symposium, The University of Manitoba, Winnipeg, Manitoba, Canada.

November 10-15, 1999 Visiting Professor, XV Congreso Nacional De Ortopedia Y Traumatologia, AMOT 99, Guadalajara, Mexico,.

April 12-13, 2000 Ste. Justine Pediatric Orthopaedic Review Course, "Treatment of medial epicondyle and lateral condyle fractures", "Assessment of muscle and nerve disorders in children", "Congenital anomalies of the lower limbs".

May 5, 2000 "Challenges to Spine Surgery Symposium", "Current and Future Concepts of Scoliosis Surgery", St. Thomas, USVI.

October 4-7, 2000 DePellegrin, M.P., Mackenzie, W.G., Harcke, H.T.: "Ultrasonographic Evaluation of Hip Morphology in Osteochondrodysplasia." 5th Congress of International Society of Musculoskeletal Ultrasonography (ISMUS), Prague, Czech Republic, Pg. 32 Program Abstract Book.

October 4-7, 2000 DePellegrin, M.P., Mackenzie, W.G., Harcke, H.T.: "The Ultrasonographic Measurement of Coxa Vara Deformity in Children." 5th Congress of International Society of Musculoskeletal Ultrasonography (ISMUS), Prague, Czech Republic, Pg. 40 Program Abstract Book.

October 26-29, 2000 Ilizarov Course: "Advanced Comprehensive Techniques in External Fixation", "Deformity Correction in Skeletal Dysplasias", "Lengthening in Pathological Bone", "Complications in Lengthening," Cancun, Mexico.

April 18-20, 2001 Ste. Justine Pediatric Orthopaedic Review Course, "Assessment of Muscle and Nerve Disorders in Children", "Congenital Anomalies of the Lower Limb", "Assessment and Management of Limb Length Discrepancies in Children." Montreal

April 21, 2001 Eighth Annual Montreal Ilizarov Course, "Principles of Hinge Placement for Uniplanar Angular Deformities and Mechanical Alignment of the Limb." Montreal

April 10-14, 2002 Ste. Justine Pediatric Orthopaedic Review Course, "The Treatment of Supracondylar, Medial Epicondyle and Lateral Condyle Fractures," "Assessment of Neuromuscular Conditions," "Management of LLD."

September 12-14, 2002 Smith & Nephew: First European Master Class on Pediatric Ilizarov Surgery, "Stiffness Measuring and the Effect of Stiffness Measurement on Lengthening Management," Lyons, France.

March 26-28, 2003 "Evaluation of the Child with Short Stature," "Congenital Anomalies of the Femur," "Management of Limb Length Discrepancies." Presented at the 16th Annual Ste. Justine Pediatric Orthopaedic Review Course.

October 24-28, 2003, Visiting Professor, "Cervical Spine in Skeletal Dysplasia," Little People of New Zealand Conference.

March 24-26, 2004 St. Justine Pediatric Orthopaedic Review Course, "Assessment of the Short Statured Child", "Assessment of the Child Neuromuscular Disease", "Assessment and Management of Limb Length Discrepancy", Montreal, CA.

July 23-24, 2004 Limb Lengthening and Reconstruction Society, "Limb Alignment in Ellis Van Creveld syndrome, Toronto, Canada.

September 3-5, 2004 Annual Orthopaedic Conference, "Assessment of the Child with Skeletal Dysplasia", "Management of Limb Alignment", San Juan, Puerto Rico, Visiting Professor.

October 14-15, 2004 Assessment of the Child with Skeletal Dysplasia; Management of Limb and Spine Deformity in Skeletal Dysplasia; Congenital Femoral Abnormalities; Anticipating, Diagnosing and Managing Growth Arrest After Skeletal Injury, 32nd Annual Paediatric Orthopaedic Seminar & Townsend Lecture, Alberta children's Hospital, Calgary, Alberta.

March 30-April 1, 2005, Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, How to Recognize and Manage Neuromuscular Disorders, "Course 101" on Short Stature Assessment, LLD: Guidelines for Assessment and Treatment, Monteal, Canada.

April 4-9, 2005 "Shelf Arthroplasty of the Hip", EPOS, Palma de Mallorca, Spain.

April 6-9, 2005 "A New Technique of Shelf Acetabuloplasty in Perthes Disease", EPOS, Mallorca, Spain. Poster Presentation #88.

April 19-21, 2006 Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, How to Recognize and Manage Neuromuscular Disorders, "Course 101" on Short Stature Assessment, LLD: Guidelines for Assessment and Treatment, Montreal, Canada.

November 3-4, 2006 – Invited Presenter, "Pes Cavus Treatment", "Therapeutic Approach in Muscular Dystrophy", "Review and Treatment in Congenital Deformities in Lower Extremities", Fibular Hemimelia, When to Lengthen, When to Amputate", "Crossfire in Limb Lengthening", Evaluation and Management of Skeletal Dysplasia", "Anticipating, Evaluating and Treating of Physeal Arrest", IV Jornadas de Actualizacion, Instituto de Ortopedia Infantil Roosevelt, Bogota, Columbia.

February 2-4, 2007, Invited Presenter, "Tibial Hemimelia", "Skeletal Dysplasia – An Overview (Diagnostic Approach)", "The Spine in Skeletal Dysplasia (Management), XIII National Meeting of Pediatric Orthopaedic Society of India, Jaipur.

March 28-30 2007, Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, "Short Stature Assessment, How to Recognize and Manage Neuromuscular Disorders"; "LLD: Guidelines for Assessing and Planning its Treatment", Quebec, Canada

April 11-14, 2007, Invited Presenter, "Upper Cervical Fusion in Children With Morquio's Disease: Long-Term Results", European Pediatric Orthopaedic Society/International Federation Pediatric Orthopaedic Societies Combined Annual Meeting, Sorrento, Italy.

April 11-14, 2007 Borowski A, Grissom L, Littleton A, Thacker M, Mackenzie W: "The Utility of Computer Tomography to Assess Acetabular Morphology in Morquio – Brailsford Syndrome" (Poster), European Pediatric Orthopaedic Society/International Federation Pediatric Orthopaedic Societies Combined Annual Meeting, Sorrento, Italy.

April 11-14, 2007 Thacker M, Belthur M, Littleton A, Miller F, Mackenzie W: "Lower Extremity Deformities in Morquio Syndrome: Natural History and Results of Surgical Correction", European Pediatric Orthopaedic Society/International Federation Pediatric Orthopaedic Societies Combined Annual Meeting, Sorrento, Italy.

March 26-28, 2008, Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course "Short Stature Assessment, How to Recognize and Manage Neuromuscular Disorders, LLD: Guidelines for Assessing and Planning Its Treatment", SPORC, Quebec, Canada

April 8 – 13, 2008, Invited Presenter, "Natural History of Early Thoraco-Lumbar Kyphosis In Children With Achondroplasia", EPOS, Warsaw, Poland

April 23-25, 2008, Invited Presenter, "Limb Alignment in Skeletal Dysplasia"; "Fibular Hemimelia"; "Tibia Hemimelia"; "Evaluation – Management of Leg Length Discrepancy", Egyptian Orthopaedic Association, Cairo, Egypt.

May 31-June 8, 2008, Invited Presenter, "The Spine in Skeletal Dysplasia", Neuromuscular Spinal Deformities", Deformity Correction & Lengthening in Skeletal Dysplasia", The 7th Combined Congress of the Spine and Pediatric Sections, Asia Pacific Orthopaedic Association. Jeju Island

March 25-27, 2009 Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, "How to Recognize and Manage Neuromuscular Disorders", "LLD:Guidelines for Assessing and Planning Its Treatment", "Course 101on Short Stature Assessment", Quebec, Canada

April 1 – 4, 2009 Poster Presentation "Treatment of Cervical Instability and Stenosis in Skeletal Dysplasia" European Pediatric Orthopaedic Society, Lisbon, Portugal

August 19 – 23, 2009 Guest Faculty 13th Annual Meeting of the Japanese Society for Research of Mucopolysaccharidosis, "Orthopaedic Management of Mucopolysaccharidoses", Osaka, Japan

October 22 – 23, 2009 Visiting Professor 24th Annual Eugene Rogala Visiting Professor In Pediatric Orthopaedic Surgery, "Skeletal Dysplasia: Concepts in the Spine and Lower Extremities", "Assessment of the Child with Skeletal Dysplasia", "Pes Cavus Treatment", Shelf Arthroplasty of the Hip", "How to Recognize and Manage Neuromuscular Disorders", "Long Term Functional Outcome Post Selective Dorsal Rhizotomies", "Anticipating, Evaluating and Treating of Physeal Arrest", Shriners Hospital for Children, Montreal, Canada

March 24 – 26, 2010 – Guest Faculty Ste. Justine Pediatric Orthopaedic Review Course, "Other Neuromuscular Disorders of Importance for the Orthopaedic Surgeons", "LLD: Guidelines for Assessing and Planning its Treatment", "Course 101 on Short Stature Assessment", Quebec, Canada

April 6 – 12, 2010 – Poster Presentation, Annual European Paediatric Orthopaedic Society, "Correction of Lower Extremity Angular Deformities in Skeletal Dysplasia with Hemi-Epiphysiodesis" preliminary data", Zagreb, Croatia

June 16-19, 2010 –Invited Presenter, 6th International ASAMI Meeting, "Fibular Hemimelia" Cairo, Egypt

September 9 – 11, 2010 – Invited Presenter, 5th Triennial Congress of International Federation of the Paediatric Orthopaedic Societies, Chair "Spine Deformities in Skeletal Dysplasia", "Genetic Bone Diseases", Seoul, Korea

October 7 – 13, 2010 – Invited Panel, IV International Congress on Achondroplasia, "Assessment and Monitoring in Achondroplasia", Gijon, Asturias, Spain

February 2 – 13, 2011 – Guest Faculty, First Indo-US Symposium on Skeletal Dysplasia, "Management of Orthopaedic Complications of Skeletal Dysplasias", "Bone and Joint Involvement in Other Genetic Disorders", "Management of Skeletal Dysplasia: Involvement of Patients and Families", Lucknow, India

March 25-27, 2011 – Guest Faculty Ste. Justine Orthopaedic Review Course, "Course 101 on Short Stature Assessment", "Let's not Forget these Syndromes", "LLD: Guidelines for Assessing and Planning Treatment", "Diagnosis and Management of Progressive Neuromuscular Disorders", Montreal, Canada

May 11- 13, 2011 – Moderator "Special Topics" Pediatric Orthopaedic Society of North America, Montreal, Canada

July 21-23, 2011 – Guest Faculty 3rd POSNA-ASEAN Pediatric Orthopaedic Course, "Shelf Procedure", "Principle of Distraction Osteogenesis", "Leg Length discrepancy Evaluation & Principle of Management", "Spine Deformity in Cerebral Palsy", "Other Neuromuscular Diseases in Children", Jakarta, Indonesia

August 8-15, 2011 – Guest Faculty Organized Medical Panel, "Primordial Dwarfism" Walking with Giants Foundation, Liverpool, England

September 3-10, 2011 – Invited Presenter, Herman Roberts Lecture Tel Aviv University, "Mucopolysaccharidoses", "Syndromes in Pediatric Orthopadics", "Evaluation and Management of Neuromuscular Disorders in Children (non Cerebral Palsy)", Tel Aviv, Israel. November 18, 2011 – Visiting Professor, British Columbia Children's Hospital "The General Assessment and Management of Skeletal Dysplasias", "Orthopaedic Management of the Lower Extremity in Skeletal Dysplasias", "Syndromes in Pediatric Orthopaedics", Vancouver, Canada

March 7-9, 2012 – Guest Faculty, Sainte-Justine Orthopaedic Review Course, "Course 101 Short Stature Assessment", "Let's not Forget these Syndromes", "Diagnosis and Management of Progressive Neuromuscular Disorders", Montreal, Canada

April 18-21, 2012 – Guest Faculty, European Paediatric Orthopaedic Society, "Flexion Extension Cervical Spine – MRI in Children with Skeletal Dysplasia – Is it Safe and Effective?", "Casting for Infantile Scoliosis: The Pitfall of Increased Peak Inspiratory Pressure", Helsinki, Finland.

May 4 - 6, 2012 - Invited Panel Association of Little People of Alberta, Alberta, Canada

March 13 – 15, 2013 – Guest Faculty, Sainte-Justine Orthopaedic Review Course, "Course 101 Short Stature Assessment", "Let's Not Forget These Syndromes", Diagnosis and Management of Progressive Neuromuscular Disorders", Montreal, Canada

April 17 – April 20, 2013 – Guest Faculty, European Pediatric Orthopaedic Society, "Pediatric spine deformities: Clinical Examination: Tips and Tricks", "Growth sparing spinal instrumentation in skeletal dysplasia", Athens, Greece

April 30 – May 4, 2013 – Invited Panel, Pediatric Orthopaedic Society of North America, "Comprehensive Program Aligning Structures & the Electronic Medical Record Improves Quality & Safety of Complex Spinal Deformity Surgery in Children", "Botulinum Toxin Type A Injection in Alleviating Post-Operative Pain & improving Quality of Life in Lower Extremity Limb Lengthening & Deformity Correction", "Hip Pathology in Majewski Osteodysplastic Primordial Dwarfism Type II", "Pediatric Cervical Spine-My Approach to the Down's Syndrome Patient", Moderator – Trauma/Basic Science/Foot & Ankle, Toronto, Canada

September 1, 2013 – Invited Panel, BioMarin, "Morquio A Syndrome Management and Treatment Guidelines Advisory Board Meeting, Barcelona, Spain

November 18 & 19, 2013 - Invited Panel, BioMarin Advisory Committee, Washington, DC

Organizing Roles in Scientific Meetings:

2000-2005	Program Chairman, Annual Meeting Delaware Society of Orthopaedic Surgeons
2001-2004	Chairman, Program Committee for Annual Meeting of Medical Society of Delaware
2004	Chairman, POSNA One-Day Course, St. Louis, MO
	- Genetics and Orthopaedics

2004-2005 Program Chairman, Annual Meeting Limb Lengthening and Reconstruction

Bibliography:

Publications, peer reviewed:

- 1. Mackenzie, W.G., Scientific Consultants. Science 1962 Mar 16;135(3507):999.
- 2. Day, B., Mackenzie, W.G., Shim, S.S., Leung, G. "The vascular and nerve supply of the human meniscus." Arthroscopy 1 (1):58-62, 1985.
- 3. Mackenzie, W.G., Morton, K.S. "Eosinophilic granuloma of bone." Canad. J. Surg. 1(4):264-267, No. 4, July 1988.
- 4. Mackenzie, W.G., Bassett, G.S., Mandell, G.A., Scott, C.I., Jr. "Avascular necrosis of the hip in multiple epiphyseal dysplasia." J Pediat Orthop 9:666-671, 1989.
- Mandell, G.A., Mackenzie, W.G., Scott, C.I., Jr., Harche, H.T., Wills, J.S., Bassett, G.S. "Identification of avascular necrosis in the dysplastic proximal femoral epiphysis." Skeletal Radiology 18:273-281, 1989.
- Bray, H., Stringer, D., Poskitt, K., Newman, D.E., Mackenzie, W.G. "Maple tree knee: A unique foreign body; Value of ultrasound and C.T. examination." Pediatric Radiology 21:457-458, 1991.
- Cairns, R.A., Mackenzie, W.G., Culham, J.A.G., "Urokinase Treatment of Forearm Ischemia Complicating Supracondylar Fracture of the Humerus in Three Children." Pediatric Radiology 23: 391-394, 1993.
- Younger, A.S.E., Tredwell, S.J., Mackenzie, W.G., Orr, J.D., King, P.M., Tennant, W. "Accurate Prediction of Outcome After Pediatric Forearm Fracture." Journal of Pediatric Orthopaedics 14: 200-206, 1994.
- 9. Younger, A.S.E., Mackenzie, W.G., Morrison, J.B., "Femoral Forces During Limb Lengthening in Children." Clinical Orthopaedics and Related Research 301: 55-63, 1994.
- Younger, A.S.E., Tredwell, S.J., Mackenzie, W.G., Letter to the Editor, JBJS 77A: 488-489, 1995, in response to Green, S.A., Gibbs, P., "The Relationship of Angulation to Translation in Fracture Deformities," JBJS 76A: 390-397, 1994.
- 11. Sharma, M., Mackenzie, W.G., Bowen, J.R., "Severe Tibial Growth Retardation in Total Fibular Hemimelia after Limb Lengthening." Journal of Pediatric Orthopaedics 16: 438-

444, 1996.

- 12. Gripp, K.W., Scott, C.I., Brockett, B.C., Nicholson, L., Mackenzie, W.G., "Extending the Spectrum of Distal Arthrogryposis." American Journal of Medical Genetics, 65:286-290, 1996.
- Tredwell, S.J., Sabharwal, S., Beauchamp, R.D., Mackenzie, W.G., Jakubec, D.M., Cairns, R., LeBlanc, J.G., "Management of Pulseless Pink Hand in Pediatric Supracondylar fractures of the Humerus," Journal of Pediatric Orthopaedics, 17(3), 303-310, 1997.
- 14. Flynn, J., Donohoe, M., Mackenzie, W.G., "An Independent Assessment of Two Clubfoot Classification Systems," Journal Of Pediatric Orthopaedics, 18(3):323-327, 1998.
- Younger, A.S.E., Tredwell, S.J., Mackenzie, W.G., "Factors Affecting Fracture Position at Cast Removal after Pediatric Forearm Fracture," Journal of Pediatric Orthopaedics, 17(3): 332-336, 1997.
- 16. Slomczykowski, M., Mackenzie, W.G., Stern, G., Keeler, K.A., "Acetabular Volume," in Journal of Pediatric Orthopaedics, 18(5):657-661, 1998.
- 17. Leet, A., Mackenzie, W., Szoke, G., Harcke, H.T., "Injury to the Growth Plate After Pemberton Osteotomy," Journal of Bone and Joint Surgery, 81A:169-176, 1999.
- 18. Kuklo, T., Keeler, K., Mackenzie W.G., "Hip Arthroscopy in Legg-Calve-Perthes Disease," Arthroscopy, Volume 15:88-92, 1999.
- Miller, F., Bowen, J.R., Mackenzie, W.G., "Comparison of Oxygen Consumption Measurements in Children with Cerebral Palsy to Children with Muscular Dystrophy," Journal of Pediatric Orthopaedics, 19:133-136, 1999.
- Tuten, H.R., Keeler, K.A., Gabos, P.G., Zionts, L.E., Mackenzie, W.G., "Posttraumatic Tibia Valga in Children. A Long-Term Follow-Up," Journal of Bone and Joint Surgery, 81A:799-810, 1999.
- 21. Gross, G.W., Mackenzie, W.G.: "Scoliosis in Children: Surgical Management And Postoperative Radiographic Appearances," Seminars in Musculo-Skeletal Radiology, 3(3):267-288, 1999.
- Flynn, J.M., Mackenzie, W.G., Kolstad, K., Sandifer, E., Jawad, A.F., Galinat, B., "Objective Evaluation of Knee Laxity in Children," Journal of Pediatric Orthopaedics, 20:259-263, Jul-Aug 2000.
- 23. Choi, I.H., Lipton, G.E., Mackenzie, W.G., Bowen, J.R., Kumar, S.J., "Wedge-Shaped Distal Tibial Epiphysis in the Pathogenesis of Equinovalgus Deformity of the Foot and Ankle in Tibial Lengthening for Fibular Hemimelia," Journal of Pediatric Orthopaedics, 20:428-436, 2000.
- 24. Reeves, G.D., Bachrach, S., Carpenter, T.O., Mackenzie, W.G., "Vitamin-D deficiency

rickets in adopted children from the former Soviet Union: an uncommon problem with unusual clinical and biochemical features," Pediatrics, 106(6):1484-8, December, 2000.

- 25. DePellegrin M.P., Mackenzie W.G., Harcke H.T. "Ultrasonographic evaluation of hip morphology in osteochondrodysplasias." J Pediatr Orthop 20(5):588-93, Sep-Oct 2000.
- 26. Mason D.E., Sanders J.O., Mackenzie W.G., Nakata Y., Winter R. "Spinal deformity in chondrodysplasia punctata." Spine 15;27(18):1995-2002, September 2002.
- 27. Mackenzie, W.G., Sampath, J., Kruse, R., Neiss, G., "Backpacks in Children," Clinical Orthopaedics and Related Research, 409:78-84 Apr 2003.
- Mackenzie, W.G., Riddle, E., Earley, Jennifer L., Sawatzky, Bonnie J., "A Neurovascular Complication After Scapulothoracic Arthrodesis," Clinical Orthopaedics and Related Research, 408:157-161, Mar 2003.
- 29. Myers, J.S., Mackenzie, W.G., Malignant bone tumors and limb salvage surgery. Pediatr Radiol 34(8):606-13, Aug 2004.
- 30. Younger, A.S.E., Morrison, J., Mackenzie, W.G., Biomechanics of external fixation and limb lengthening. Foot and Ankle Clin, 9(3):433-448, Sept 2004.
- 31. Thacker, M., Mackenzie, W.G., Limb Lengthening and angular deformity correction in skeletal dysplasias. Current Opinion in Orthopaedics, 15(6):399-403, 2004.
- 32. Tsirikos A.I., Mackenzie W., Conard K.A., Czulewicz Reese L: "Synovial Chondromatosis in the Pediatric Patient," Am J Orthop., 34(3):129-32, Mar 2005.
- 33. Inan M., Senaran H., Mackenzie W.G.: Center of the femoral head: A magnetic resonance imaging study. J Pediatr Orthop 26(4):471-473, 2006.
- 34. Inan M., Thacker, M., Church C., Miller F., Mackenzie W.G., Conklin D.: Dynamic lower extremity alignment in children with achondroplasia. J Pediatr Orthop 26(4):526-529, 2006.
- 35. Mackenzie W.G., Riddle E., Oh C.W., Thacker M.: Coxa Vara: A novel measurement technique in skeletal dysplasias. Clin Orthop Rel Res 447:125-131, 2006.
- Nagai M.K., Chan G., Guille J.T., Jay Kumar S., Scavina M., Mackenzie W.G.: Prevalence of Charcot-Marie Tooth disease in patients who have bilateral cavovarus feet. J Pediatr Orthop 26(4):438-443, 2006.
- Inan M., Jeong C., Chan G., Mackenzie W.G., Glutting J.: Analysis of Lower Extremity Alignment in Achondroplasia: Interobserver Reliability and Intraobserver Reproducibility. J Pediatr Orthop 26(1):75-8, Jan-Feb 2006.
- 38. Leet A.I., Sampath J.S., Scott C.I. Jr, Mackenzie W.G.: Cervical spinal stenosis in metatropic dysplasia. J Pediatr Orthop 26(3):347-352, May-June 2006.

- 39. Choudhry D.K., Mackenzie W.G.: Anesthetic issues with a hyperextended cervical spine in a child with Emery-Dreifuss syndrome. Anesth Analg 103(6):1611-1613, 2006.
- 40. Harcke H.T., Kecskemethy H.H., Conklin D., Scavina M., Mackenzie W.G., MacKay C.P.: Assessment of bone mineral density in Duchenne Muscular Dystrophy using the lateral distal femur. J Clin Neuromusc Dis 8:1-6, 2006.
- 41. Borowski A., Thacker M.M., Mackenzie W.G., Littleton A.G., Grissom L.: The use of computed tomography to assess acetrabular morphology in Morquio-Brailsford syndrome. J Pediatr Orthop 27(8):893-897, December 2007.
- 42. Hamby, R.C., Montpetit K., Ruck-Gibis J., Thorstad K., Raney E., Aiona M., et al. Safety and efficacy of botox injection in alleviating post-operative pain and improving quality of life in lower extremity limb lengthening and deformity correction. Trials 2007 Sep 28;8:27.:27.
- 43. Kupcha P.C., Mackenzie W.G., Percutaneous Achilles tendon repair using ring forceps. Am J Orthop 2008 Nov;37(11):586.
- 44. Borkhuu B., Nagaraju D.K., Chan G., Holmes L., Jr., Mackenzie W.G. Factors related to progression of thoracolumbar kyphosis in children with achondroplasia: a retrospective cohort study of forty-eight children treated in a comprehensive orthopaedic center. Spine, Phila Pa 2009;34(16):1699-705.
- 45. Mackenzie W.G.: The Spine In Children With Short Stature. POSITIVE (POSI newsletter for Pediatric Orthopaedics) 2009.
- 46. Rodriguez A.R., Thacker M., Becerra L.C., Riddle E., Mackenzie W.G. "Limb Length Discrepancy and Congenital Limb Anomalies in Fibular Hemimelia", JPO-B 2009
- 47. Domzalski M., Mackenzie W., Growth Arrest of the Proximal Tibial Physis with Recurrvatum and Valgus Deformity of the Knee. Knee 2009 May 13.
- 48. Hamby R.C., Montpetit K., Raney E.M., Aiona M.D., Fillman R.R., Mackenzie W., et al. Botulinum toxin type An injection in alleviating postoperative pain and improving quality of life in lower extremity limb lengthening and deformity correction: a pilot study. J Pediatr Orthop 2009 Jul; 29(5):427-34.
- 49. Rodriguez M.E., Mackenzie W.G., Ditro C., Miller T.L., Chidekel A., Shaffer T.H., "Skeletal Dysplasias: Evaluation with Impulse Oscillometry and Thoracoabdominal Motion". Pediatric Pulmonology, 2010 May 17; 45(7):679-686.
- 50. Sasaki-Adams D.M., Campbell J.W., Bajelidze G., Assis M.C., Mackenzie W.G., Ritter AM. Level of the conus in pediatric patients with skeletal dysplasia. J Neurosurg Pediatr 2010 May; 5(5):455-9.

- 51. Szoke G., Mackenzie W.G., Domos G., Berki S., Kiss S., Bowen J.R. "Possible mistakes in prediction of bone maturation in fibular hemimelia by Moseley chart". Int Orthop. 2010 March
- 52. Wee J., Rahman T., Seliktar R., Levine D., Richardson D., et al. Force feedback in limb lengthening. Conf Proc IEEE Eng Med Biol Soc 2010;1:5109-12.:5109-12.
- 53. Rodriguez-Ramirez A., Thacker M.M., Becerra L.C., Riddle E.C., Mackenzie W.G., "Limb Length Discrepancy and Congenital Limb Anomalies in Fibular Hemimelia, J Pediatr Orthop B., 2010 May.
- 54. Wee J., Rahman T., Akins R.E., Seliktar R., Levine D.G., Richardson D.W., Dodge G.R., Thabet A.M., Holmes L., Mackenzie, W.G., Using distraction forces to drive an autodistractor during limb lengthening, Med Eng Phys. 2011 April 29
- 55. Rahman T, Atkins RE, Wee J, Mackenzie WG, Continuous Force Measurement in Limb Lengthening. J Bioengineer & Biomedical Science, Vol 1, Issue 2, December 2011.
- 56. Tomatsu S, Montano AM, Oikawa H, Smith M, Barrera L, Chinen Y, Mackenzie W., et al Mucopolysaccharidosis type IVA (Morquio A disease): clinical review and current treatment. Curr Pharm Biotechnol 2011, Jun;12(6):931-45.
- 57. Thacker MM, Dabney KW, Mackenzie WG., Osteochondritis dissecans of the talar head: natural history and review of literature. J Pediatr Orthop B. 2012 Jul;21(4):373-6 PMID:22673051
- 58. Dhawale AA, Thacker MM, Belthur MV, Rogers K, Bober MB, Mackenzie, WG, The Lower Extremity in Morquio Syndrome, J Pediatr Orthop. 2012 Jul;32(5):534-40, PMID:22706472
- 59. Baratela WA, Bober MB, Tiller GE, Okenfus E, Ditro C, Duker A, Krakow D, Stabley DL, Sol-Church K, Mackenzie WG, Lachman R, Scott CI Jr., A newly recognized syndrome with characteristic facial features, skeletal dysplasia and developmental delay, Am J Med Genet A. 2012 Jun 18.doi: 10.1002/1jmg.a35445,PMID:22711505
- Theroux, M.C., Nerker, T., Ditro, C., Mackenzie, W.G. Anesthetic care and perioperative complications of children with Morquio syndrome. Pediatr Anaesth. 2012;10-9592, PMID:22738181
- 61. Bober MB, Taylor M, Heinle R, Mackenzie WG. Achondroplasia-hypochondroplasia complex and abnormal pulmonary anatomy. Am J Med Genet A. 2012 Aug 7:10.1002, PMID:22888019
- 62. Dhawale AA, Church C, Henley J, Holmes L Jr, Thacker MM, Mackenzie WG, Miller F. Gait pattern and lower extremity alignment in children with Morquio Syndrome. J Pediar Orthop B. 2012 Sep 22, PMID:23010763
- 63. Tomatsu S, Mackenzie WG, Theroux MC, Mason RW, Thacker MM, Shaffer TH, Montano AM, Rowan D, Sly W, Almeciga-Diaz CJ, Barrera LA, Chinen Y, Yasuda E, Ruhnke K, Suzuki Y, Orii T. Current and emerging treatments and surgical interventions for Morquio A syndrome: a review. Research and Reports in Endocrine Disorders. December 2012 Volume 2012:2 Pages 65-77.

- 64. Oda JE, Shah SA, Mackenzie WG, Akbarnia BA, Yazici M. "Concurrent tethered cord release and growing rod implantation Is it safe?" Global Spine J 2 (4): 207-212, 2012.
- 65. Mackenzie WG, Dhawale AA, Demczko MM, Ditro C, Rogers KJ, Bober MB, Campbell JW, Grissom LE. Flexion-extension cervical spine MRI in children with skeletal dysplasia: is it safe and effective? J Pediatr Orthop. 2013 Jan;33(1):91-8, PMID:23232386
- 66. Dhawale AA, Shah SA, Reichard S, Holmes L Jr, Brislin R, Rogers K, Mackenzie WG. Casting for infantile scoliosis: the pitfall of increased peak inspiratory pressure. J Pediatr Orthop. 2013. Jan;33(1):63-7.PMID:23232382
- 67. Solanki GA, Martin KW, Theroux MC, Lampe C, White KK, Shediac R, Lampe CG, Beck M, Mackenzie WG, Hendriksz CJ, Harmatz PR. "Spinal involvement in mucopolysaccharidosis IVA (Morquio-Brailsford or Morquio A syndrome): presentation, diagnosis and management. J Inherit Metab Dis 2013 Feb 6, PMID:23385297
- 68. Kalish JM, Conlin LK, Mostoufi-Moab S, Wilkens AB, Mulchandani S, Zelley K, Kowalski M, Bhatti TR, Russo P, Mattei P, Mackenzie WG, Livolsi V, Nichols KE, Biegel JA, Spinner NB, Deardorff MA., "Bilateral pheochromocytomas, hemihyperplasia, and subtle somatic mosaicism: The importance of detecting low-level uniparental disomy", Am J Med Genet A. 2013 Mar 26, PMID:23532898.
- 69. Kadhim M, Pizarro C, Holmes L Jr, Rogers KJ, Kallur A, Mackenzie WG. "Prevalance of scoliosis in patients with Fontan circulation". Arch Dis child. 2013 Mar; 98(3) PMID 23264433
- 70. Yasuda E, Fushimi K, Suzuki Y, Shimizu K, Takami T, Zustin J, Patel P, Ruhnke K, Shimada T, Boyce B, Kokas T, Barone C, Theroux M, Mackenzie W, Nagel B, Ryerse JS, Orii KE, Iida H, Orii T, Tomatsu S. "Pathogenesis of Morquio A Syndrome: An autopsied case reveals systemic storage disorder". Mol Genet Metab. 2013 Apr 16. S1096-7192(13)00135-2, PMID:23683769.
- Dede O, Thacker MM, Rogers KJ, Oto M, Belthur MV, Baratela W, Mackenzie WG. "Upper cervical fusion in children with morquio syndrome: intermediate to long-term results". J Bone Joint Surg AM. 2013 Jul 3;93(13):1228-34, PMID: 23824392.
- 72. Dung VC, Tomatsu S, Montano AM, Gottesman G, Bober MB, Mackenzie W, Maeda M, Mitchell GA, Suzuki Y, Orii T. "Mucopolysaccharidosis IVA: Correlation between genotype, phenotype and keratin sulfate levels", Mol Genet Metab. 2013 June 26, PMID:23876334.
- 73.Karatas AF, Dede O, Rogers K, Ditro CP, Holmes L, Bober M, Shah SA, Mackenzie WG. "Growth-Sparing Spinal Instrumentation in Skeletal Dysplasia", Spine (Phila Pa 1976). 2013 Aug 5 PMID:23921322
- 74. Yilmaz G, Oto M, Thabet AM, Rogers KJ, Anticevic D, Thacker MM, Mackenzie WG. "Correction of Lower Extremity Angular Deformities in Skeletal Dysplasia with Hemiepiphysiodesis: A Preliminary Report", J Pediatr Orthop. 2013 Aug 20. PMID: 23965916.

- 75. Baratela WA, Bober MB, Thacker MM, Belthur MV, Oto M, Rogers KJ, Mackenzie WG. "Cervicothoracic Myelopathy in Children with Morquio Syndrome A: A Report of 4 Cases", J Pediatr Orthop. 2013 Oct 3, PMID: 24096444
- 76. Kadhim M, Spurrier E, Thacker D, Pizarro C, Mackenzie WG. "Scoliosis Surgery in Children With Congenital Heart Disease". Spine (Phila Pa 1976). 2013 Oct 22 PMID:24153164

Publications, non-peer reviewed:

- 1. Mackenzie, WG: "Skeletal Dysplasia" Global HELP 2008.
- 2. Mackenzie, WG: "Skeletal Dysplasia" Global HELP 2009

Abstracts:

Mackenzie, W.G., Shim, S.S., Day B., Leung, G. "The blood and nerve supply of the knee meniscus in man." Anat. Rec. 211:115A, 1985.

"A new index of long bone deformity predicting outcome after pediatric forearm fracture." Canadian Orthopaedic Association Meeting, Toronto (Abstracted in Journal of Bone and Joint Surgery).

March 1991 58th Annual Meeting of the American Academy of Orthopaedic Surgeons, Anaheim, CA. "Forces measured during femoral lengthening in children." (Abstracted in the Journal of Bone and Joint Surgery).

April 1991 American Orthopaedic Association Resident's Conference, Kansas City. "The outcome after pediatric forearm fracture reduction." (Abstracted in the Journal of Bone and Joint Surgery).

April 24, 1991 Canadian Resident's Association Conference, Hamilton, ON. "The remodeling potential of the pediatric forearm after fracture." (Abstracted in the Journal of Bone and Joint Surgery).

June 2-6, 1991 Mackenzie, W.G., Younger, A.S., Morrison, J.B. "Forces during femoral lengthening in children." Canadian Orthopaedic Association Annual Meeting. Calgary, AB (Abstracted in the Journal of Bone and Joint Surgery).

2006 Jason M. Gallina, MD; Suken A. Shah, MD; Jeffrey W. Campbell, MD; William G. Mackenzie, MD: "Atlantoaxial Transarticular Screw Fixation in Pediatric Patients", Cervical Spine Research Society Annual Meeting, submitted abstract June 1, 2006.

2006 Jason M. Gallina, MD; Suken A. Shah, MD; Jeffrey W. Campbell, MD; William G. Mackenzie, MD: "Atlantoaxial Transarticular Screw Fixation in Pediatric Patients", American Academy of Orthopaedic Society Annual Meeting, submitted abstract June 1, 2006

March 8-11, 2007 Dixit D, Theroux M, Brown M, Mackenzie W, Costarino A: "Congenital Hypotonic Syndrome with Persistently Elevated CPK: Anesthetic Concerns", SPA/AAP Pediatric Anesthesiology 2007, Phoenix, AZ, submitted abstract Nov 2006.

January 2009 Schwartz, Daniel M., Sestokas, Anthony K., Bhalodia, Vidya M., Wiggins, Cheryl R., Flynn, John M., Mackenzie, William G., Shah, Suken A., Gabos, Peter G., Bowen, Richard E., Crawford, Alvin H., Wall, Eric J., Dormans, John P.: "The Role of Neuromonitoring in Growing Rod and VEPTR Surgery", SRS/IMAST, submitted abstract January 27, 2009.

July 2009 Leadroot, Jen, Oswald, Gretchen, Miller, Dee, Berkowitz, I, Ain, Michael, Yost, Tresie, Mackenzie, William, Ditro, Colleen, Rogers, Kenneth, Hecht, Jacqueline, McGready, J, Schulze, Kerry "Multi-site assessment of hypertension prevalence in short stature skeletal dysplasias" submitted abstract May 2009.

Oda Je, Shah SA, Mackenzie WG. "Concurrent Tethered Cord Release and Growing Rod Implanation: Is it Safe?" 16th International Meeting on Advanced Spine Techniques, Vienna Austria, 2009

Jinyong Wee, Tariq Rahman, Robert E. Atkins, Rahamim Seliktar, David G.Levine, Dean W. Richardson, George R. Dodge, Ahmed M. Thabet, Laurens Holmes, William G. Mackenzie, "Using distraction forces to drive an autodistractor during limb lengthening" Medical Engineering and Physics, 2011

Shah, S., Rogers, KJ., Mackenzie, WG., "Casting for Early Onset Scoliosis: The Pitfall of Increased Peak Inspiratory Pressure, Case Discussion, Scoliosis Research Society, Louisville, Kentucky, September 14-17, 2011

November 24-26, 2011 Tomatsu, S., Dung, VC, Montano, A., Robinson, A., Bober, M., Mackenzie, W., Mitchell, G., Suzuki, Y., Orii, T., "Mucopolysaccharidosis Iva: Correlation Between Genotype, Phenotype and Keratan Sulfate Level", 53rd Annual Meeting of the Japanese Society for Inherited Metabolic Diseases and 10th Annual Symposium of the Asian Society for Inherited Metabolic Diseases.

Hurd, L., Kirwin, S., Vinette, K., Bober, M., Mackenzie, W., Duncan, R., Funanage, V., "Characterization of transient receptor potential vanilloid channel 4 (TRPV4) in metatropic dysplasia primary cell lines" Human Genetics Conference, Fall 2012 Editorials, Reviews, Chapters, including participation in committee reports:

- 1. Beauchamp, R.D., Mackenzie, W.G., Stewart, A.K., Chapter Seating the patient with muscular dystrophy in Principles of Seating the Disabled editor M. Letts. CRC Press, 1991.
- 2. Mackenzie, W.G. "Femoral shaft fractures." Chapter in Management of Pediatric Fractures. Editor Letts, M., Churchill Livingstone, 1994.
- 3. Mackenzie, W.G. "Complications of Neuromuscular Disorders in Children" in Complications in Pediatric Orthopaedic Surgery. J. Richard Bowen, M.D. and Charles Eppes, M.D., Editors. J.B. Lippincott, Philadelphia, PA, 1994.
- 4. Mackenzie W., Bowen, J.R., Neuromuscular Disease; In: Chapman M, ed. Operative Orthopaedics. Philadelphia, PA: JB Lippincott 2nd edition, 1999.
- 5. Scott CI Jr, Mackenzie WG. Metatropic Dysplasia, Chapter 1. In NORD's Guide to Rare Disorders Lippincot, Williams & Wilkins, Philadelphia, 2003, pg.20.
- 6. Mackenzie WG, Fassier F: "Cervical Spine Problems in Children with Skeletal Dysplasias," accepted for publication by Dekker Publishers.
- Mackenzie WG, Gabos PG: "Localized Disorders of Bone and Soft Tissue" In: Morrissy RT and Weinstein SL, ed. Lovell and Winter's Pediatric Orthopaedics. Philadelphia, PA: Lippincott, Williams & Wilkins; 5th ed.; 2001:339-377.
- Mackenzie WG, Shah SA, Takemitsu M: "The Cervical Spine in Skeletal Dysplasia," In: Clark C, ed. The Cervical Spine, 4th ed., Philadelphia: Lippincott, Williams & Wilkins, 2005, Chapter 36, p.459-480.
- 9. Mackenzie WG, Gabos PG: "Localized Disorders of Bone and Soft Tissue" In: Morrissy RT and Weinstein SL, ed. Lovell and Winter's Pediatric Orthopaedics. Philadelphia, PA: Lippincott, Williams and Wilkins; 6th edition, 2006:315-356.
- 10. Nagai MK, Mackenzie WG: "Growth Arrest" In: Rozbruch SR's Limb Lengthening and Reconstruction Surgery, Informa Healthcare, 2006, Chapter 32, 461-475.
- 11. Mackenzie WG, Editorial Board: "Orthopaedic Knowledge Update: Pediatrics 3" ed Abel MF, Rosemont, IL, American Academy of Orthopaedic Surgeons, 2006.
- Mackenzie WG, Section Editor: "Section 2: Neuromuscular Disorders and Metabolic Bone Diseases" In: Abel MF ed. "Orthopaedic Knowledge Update: Pediatrics 3. Rosemont, IL, American Academy of Orthopaedic Surgeons, July 2006.
- 13. Mackenzie WG: "Syndrome Evaluation" In: Staheli and Song Pediatric Orthopaedic Secrets,

Chapter 85, 2007, Mosby.

- 14. Mackenzie WG, Chan Gilbert: "Spinal Deformity in Skeletal Dysplasia" In: Surgical Management of Spinal Deformities, Chapter 16, ed Errico, Lonner, Moulton, 2009, Saunders Elsevier.
 - 15. Mackenzie, WG, "Orthopaedic and Musculoskeletal Problems" In: Neonatology, 6th Edition, Chapter, 2009, McGraw Hill.
 - 16. Mackenzie, WG, Cornes, MJ: "Lower Limb Lengthening In Skeletal Dysplasias" In: Management of Limb-Length Discrepancies, AAOS, 2011, Chapter 15, 121-127

<u>Alternative Media:</u> Skeletal Dysplasia - Website Ellis-van Creveld – pamphlets - 2005 Aches and Gains Radio Show – Little People of America 11/2011 LP Doc Talk – On line question and answer session 1/13

Community Service:

Ronald McDonald House Board of Directors Advocate at the 2013 AAOS Research Capitol Hill Days LP Dock Talk – online question and answer session

Support:

Alfred I. Dupont Institute, Nemours Research Programs, Grant # 20-8872, January 1, 1997-December 31, 1997 - \$6,000. "Growth Retardation Resulting from Limb Lengthening: A Rabbit Study."

Alfred I. DuPont Institute, Nemours Research Programs Grant #20-8892, October 28, 1996-September 30, 1997 - \$5,185. "Growth Plate Injury After Pemberton Osteotomy: A Pilot Study Using a Pig Model."

Alfred I. DuPont Institute, Nemours Research Programs Grant #W20-8612, October 1, 1998-July 1, 1999 - \$7,500. "Molecular Diagnosis of Pediatric Intra-Articular Infection Using the Polymerase Chain Reaction."

Alfred I. duPont Hospital for Children, Nemours Research Programs Grant #W20-8663, July 1, 2000-June 30, 2001 - \$93,850. "Back Pain in Children: Is Backpack Use a Quantifiable Risk Factor?"

Alfred I. duPont Hospital for Children "Back Pain in Children: Is Backpack Use a Quantifiable Risk Factor?" Co-Investigator 2002.

Alfred I. duPont Hospital for Children, Protocol #96-071, AI3202, "Growth Retardation resulting from Limb Lengthening: A Rabbit Study." Co-Investigator 2002.

Alfred I. duPont Hospital for Children, Protocol #2001-123, "Psychological and Orthopedic Outcomes of Treatment for Limb Deficiency Disorders: A Focus on the Family." Co-Investigator 2002.

Alfred I. duPont Hospital for Children, Protocol #2001-064, "Correlating Factors and Clinical Significance of Pediatric Upper and Lower Extremity Fractures and the Use of Methylphenidate." Co-Investigator 2002.

Protocol No. OXP3004: Multicenter, Open-Label, Multiple-Dose Study of the Conversion From Immediate Release Oxycodone (OxylR[®]) to Controlled Released Oxycodone (OxyContin[®]) to Evaluate Pharmacokinetics and to Characterize Safety and Efficacy in Pediatric Patients 6 to \leq 16 Years of Age – Co-Investigator. 2003.

Protocol: "Force controlled-limb lengthening" - Principal Investigator. 2003.

Nemours Children Clinic/Alfred I. duPont Hospital for Children: Effect of Surgery on Seating Pressures in wheelchair bound patients with neuromuscular scoliosis, 2004.

Shriners Hospitals for Children/Alfred I. duPont Hospital for Children: Multi-Center Pilot Study: Safety and Efficacy of Botox Injection in Alleviating Pain and Improving Quality of Life in Lower Extremity Limb Lengthening and Deformity Correction (BOLLD Study) – Principal Investigator. 2005

Shriners Hospitals for Children/Alfred I. duPont Hospital for Children: Multi-Center Pilot Study: Safety and Efficacy of Botox Injection in Alleviating Pain and Improving Quality of Life in Lower Extremity Limb Lengthening and Deformity Correction (BOLLD Study) – Principal Investigator. 2006