GUIDELINES FOR HANDLING PEDIATRIC LUNG BIOPSIES

1. SITE AND SIZE OF BIOPSY:
For focal disease, the biopsy should be taken from a region of involvement. For diffuse lung disease, the biopsy should be taken from any site, except the tip of the right middle lobe or the tip of the lingula. These areas tend to show disproportionately severe changes and may lead to a faulty impression of degree of injury. Recommended size is approximately 2-3 cm wide and at least 1 cm deep for open or thoracoscopic wedge lung biopsy. This allows adequate quantity of tissue for special studies and provides adequate depth of biopsy for assessment of airways.

2. SPECIMEN HANDLING IN PATHOLOGY:
SPECIAL STUDIES:
While the specimen is fresh, portions of the biopsy should be submitted for special studies from the lateral edges of the biopsy, as indicated below. If there is insufficient material for all studies, they should be prioritized according to clinical indications.
1. Microbiology cultures (sterile) – bacterial, viral, fungal and/or acid fast
2. Rapid diagnosis of opportunistic infection – 6 total touch imprints (3 air-dried, 3 alcohol-fixed) for special stains
3. Electron microscopy – fixed in glutaraldehyde – few small pieces (1 mm each)
4. Molecular diagnostics (viral, genetic) – snap frozen in a cryovial
5. Immunofluorescence – inflate with OCT/sucrose* and snap freeze in a cryomold with OCT (see technique below).
**Technical Note: Freezing lung tissue in OCT.** Inject a section of lung tissue with OCT/sucrose mixture (equal parts OCT cryomatrix and 0.5 molar sucrose) using a tuberculin syringe. The sucrose is used to decrease the viscosity of the OCT and allows injection and expansion of the lung tissue prior to freezing. OCT/sucrose can be kept in the refrigerator in the grossing area and should be warmed to room temperature before use. Draw up the OCT/sucrose mixture into a tuberculin syringe through the hub (with the needle removed). Replace the needle and gently inflate the tissue section. Place the inflated section in a cryomold, embed it in OCT (not OCT/sucrose mixture), and snap freeze in liquid nitrogen.

**HISTOPATHOLOGY:**
The remaining mid-portion of the lung biopsy should be fixed by inflation with formalin. Remove the staple line. Fill a tuberculin syringe (or other fine needle and syringe) with formalin and gently inflate the biopsy by puncturing the pleura with the needle and using gentle pressure to inflate the lung tissue. Some fluid will leak from the surfaces, but the tissue will visibly distend and retain most of the formalin. Reposition the needle and continue injecting until the tissue appears maximally expanded. Place it in a container with additional formalin and let it fix for approximately 15-20 minutes before sectioning and submitting cassettes for histology. Section the tissue perpendicular to the resection margin, such that each plane of section is wedge-shaped, including the central flat edge and the peripheral angle.

3. **PEDIATRIC LUNG PATHOLOGY CONSULTATION SERVICE:**
Please send **1 H&E recut slide** of each block and at least **6 unstained slides** (or a representative block) to the following address:

   Megan K. Dishop MD  
   Pathology Laboratory, Mailstop 32-B600  
   Children’s Hospitals and Clinics of Minnesota  
   2525 Chicago Ave S.  
   Minneapolis, MN 55404  
   Ph: 612-813-6521  
   Fax: 612-813-7721  
   Email: megan.dishop@childrensMN.org

Also include a copy of the pathology report and any relevant clinical information (clinical summary, H&P, Pulmonary consult note, Diagnostic imaging/Chest CT results, etc.). Frozen and EM tissue may be retained until requested for further diagnostic evaluation.

*rev: mkd 04/07/15*
Megan K. Dishop, M.D.
Pathology and Laboratory Medicine, MS32-B600
Children’s Hospitals and Clinics of Minnesota
2525 Chicago Ave South
Minneapolis, MN 55404 USA
Ph: 612-813-6711, 612-813-6521
Fax: 612-813-7721
Email: megan.dishop@childrensmn.org

Education

Bachelor of Science (B.S.) in Biology (Cum Laude). Duke University, Durham, North Carolina. August 1989 – May 1993

Doctorate of Medicine (M.D.). Wake Forest University (Bowman Gray School of Medicine), Winston-Salem, North Carolina. August 1993 – May 1997


Fellowship, Pediatric Pathology. Baylor College of Medicine, Texas Children’s Hospital, Houston, Texas. July 2002 – June 2003

Current Position

Medical Director of Anatomic Pathology, Children’s Hospitals and Clinics of Minnesota, Minneapolis-St. Paul, Minnesota. March 2015 - present

- Administrative leadership of histology laboratory, surgical pathology and autopsy services.
- Pediatric surgical pathology service.
- Pediatric gastrointestinal biopsy service.
- Pediatric autopsy service.
- Pediatric hematopathology and cytopathology service.
- Evening and weekend general clinical pathology call responsibility.

Expert Consultant in Pediatric Lung Pathology. 2004 – present

- Diagnostic Consultation practice for pediatric lung disease, including pediatric acute respiratory disease and infection, chronic interstitial lung disease, surfactant dysfunction disorders, hemorrhage syndromes, autoimmune disease, small airway disease, genetic and developmental disorders, congenital malformations, and pediatric lung tumors.
- National and International client referral base, including the United States (over 40 states, D.C.) and over 30 other countries (Canada, England, France, Belgium, Switzerland, Spain, Greece, Italy, Denmark, Norway, Sweden, Czech Republic, Poland, Bulgaria, Croatia, Israel, Qatar, Turkey, Saudi Arabia, China, Hong Kong, Thailand, Philippines, Malaysia, India, Venezuela, Argentina, Brazil, Columbia, Australia, New Zealand, South Africa).
• Approximately 250 outside consultation cases annually (124 in 2009; 177 in 2010; 187 in 2011; 220 in 2012; 266 in 2013; 265 in 2014).
• Faculty member, The Breathing Institute, Children’s Hospital Colorado.
• Medicolegal expert witness for pediatric lung disease.

Prior Professional Experience

**Pediatric Pathologist, Texas Children's Hospital and Baylor College of Medicine, Houston, TX.**

- General surgical pathology service, Gastrointestinal biopsies, Heart transplant, Lung transplant, Liver transplant biopsies, Renal biopsies.
- Evening and weekend general clinical pathology call responsibility (1 week every 4-5 weeks), 2003-2007.

**Pediatric Pathologist, Children’s Hospital Colorado and University of Colorado School of Medicine, Aurora, CO.**

- Pediatric surgical pathology service (3 weeks of 10).
- Pediatric gastrointestinal biopsy service (5 weeks of 10).
- Pediatric autopsy service (8 weeks of 10).
- Evening and weekend general clinical pathology call responsibility (3 weeks of 10).
- Hematopathology and cytopathology service coverage, as needed.

Academic Appointments

**Assistant Professor of Pathology**, Baylor College of Medicine.  
July 2003 – April 2009

**Visiting Professor of Pathology**, University of Kentucky College of Medicine.  
November 2003 – 2011

**Associate Professor of Pathology**, Baylor College of Medicine.  
April 2009 - May 2009

**Associate Professor of Pathology**, University of Colorado School of Medicine.  
May 2009 – February 2015

**Adjoint Professor of Pediatrics**, University of Colorado School of Medicine.  
March 2015 - present.

Certification and Licensure

**Diplomate, American Board of Pathology, Anatomic and Clinical Pathology Board Certification.** Time-unlimited board certification.  
July 29, 2002

**Diplomate, American Board of Pathology, Pediatric Pathology Subspecialty Board Certification.** Time-unlimited board certification.  
September 18, 2003

**Medical License, Commonwealth of Kentucky.**  
1997-2008
Medical License, State of Texas, L6863. 2002-2011

Medical License, State of Colorado, DR47718. 2009-2015

Medical License, State of Minnesota, 58923. 2015-present

National Provider Identification (NPI) number 1609822568

**Professional Memberships and Activities**

**United States and Canadian Academy of Pathology.**
Moderator, Pediatric Pathology Evening Specialty Conference, annual meetings 2016-18. 1997 – present

**American Society of Clinical Pathologists.**
1997 – present

**College of American Pathologists.**
Junior member, Surgical Pathology Committee, 1999-2001 (2-year term).
Fellow member (FCAP), 2003-present.
Member, Surgical Pathology Committee, 2007-2013 (6-year term).
Case Manager, Performance Improvement Program, Surgical Pathology Committee, 2009-2013.
Member, Pediatric Pathology Learning Portal, Pulmonary Disease panel, 2015.

**Society for Pediatric Pathology.**
Moderator, Platform session IA, Society for Pediatric Pathology annual meeting, Atlanta GA, February 2006.
Moderator, Poster session I, Society for Pediatric Pathology annual meeting, Denver, CO, March 2008.
Member, Education Committee, 2007 – 2015.
Member, Slide survey subcommittee, 2007 – 2015.
Chair, Slide survey subcommittee, November 2008 – March 2015.
Moderator, Poster session, Paediatric Pathology Society/Society for Pediatric Pathology joint meeting, Birmingham, UK, September 2014.

**Children’s Oncology Group.**
Member, COG Pathology Discipline Steering Committee, February 2006 - present.
Member and Pathology Representative, COG Membership Committee, February 2006 - present.
Member, COG Institutional Performance Monitoring Committee (IPMC), April 2013-present.

**Children’s Interstitial Lung Disease (chILD) Research Network.**
Member, Pathology Working Group, 2004 – present.
Pathology coordinator, Denmark-United States chILD case review meeting, Department of Pathology, The Children’s Hospital, Denver, CO, January 2010.
Pathology working group coordinator, Denver chILD retreat, Children’s Hospital Colorado,
March 2013.

**Pulmonary Pathology Society.**
Member, ad hoc committee for new member recruitment, 2007.
Moderator, Platform session, Pulmonary Pathology Society annual meeting, Portland, OR, June 2009.

**Honors and Awards**

<table>
<thead>
<tr>
<th>Award Description</th>
<th>Institution/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howard Hughes Fellowship for Undergraduate Research in the Biological Sciences</td>
<td>Duke University, Durham NC.</td>
</tr>
<tr>
<td>Chief Resident, Anatomic and Clinical Pathology</td>
<td>Department of Pathology, University of Kentucky A.B. Chandler Medical Center, Lexington, KY.</td>
</tr>
<tr>
<td>Resident Teaching Award</td>
<td>given annually to the resident showing outstanding teaching of fellow residents, Department of Pathology, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. 2000-2001 academic year, 2001-2002 academic year.</td>
</tr>
<tr>
<td>Recognition of Service to Pediatric Hematology-Oncology</td>
<td>awarded by the Division of Pediatric Hematology-Oncology for teaching at Pediatric Tumor Board, University of Kentucky A.B. Chandler Medical Center, Lexington, KY.</td>
</tr>
<tr>
<td>Excellence in Teaching by a non-Pediatrics Faculty Member</td>
<td>first annual award given by the Department of Pediatrics, Texas Children’s Hospital, Baylor College of Medicine, Houston, TX.</td>
</tr>
<tr>
<td>Faculty Award for Outstanding Resident Teaching in Anatomic Pathology</td>
<td>2007-2008, awarded by the Department of Pathology, Baylor College of Medicine, Houston, TX.</td>
</tr>
<tr>
<td>Best Doctors in America</td>
<td>Elected by peers for inclusion in Best Doctors in America®.</td>
</tr>
<tr>
<td>Summit Award for Excellence in Teaching and the Education of Pathologists</td>
<td>awarded by the Department of Pathology to the top 10% of faculty members based on faculty evaluations completed by residents and fellows, University of Colorado School of Medicine, Denver, CO. 2009-2010 academic year, 2011-2012 academic year, 2013-2014 academic year.</td>
</tr>
<tr>
<td>“Top Doc” in Pediatric Pathology</td>
<td>awarded by 5280 magazine and elected by vote of physicians in the Denver metropolitan area, Denver, CO.</td>
</tr>
<tr>
<td>Selected participant</td>
<td>Association of American Medical Colleges (AAMC) Mid-Career Women Faculty Professional Development Seminar, Austin, TX.</td>
</tr>
<tr>
<td>Distinguished Colleague Award, Society for Pediatric Pathology</td>
<td>presented “in appreciation of your effective management and continued dedication to the SPP Slide Survey through this period of changing ACCME and AMA certification requirements”, Presented at the SPP Spring Summit 2012.</td>
</tr>
</tbody>
</table>
Meeting, Vancouver, BC, March 2012.

**Award for Excellence in Teaching from University of Colorado Child Health Associate/Physician Assistant Program Pathology Course,** (Rated 4.0 or above on a 5.0 scale). 2011-12 academic year, 2012-13 academic year, 2013-14 academic year.  


**Certificate of Recognition as an Exemplary Mentor** in the positive development of junior colleagues in the profession. Awarded by The Quality of Life Research Center.  

**Certificate of Recognition for College of American Pathologists Committee Service 2013,** for outstanding service and lasting contributions as a Member of the Surgical Pathology Committee.  

**Distinguished Colleague Award, Society for Pediatric Pathology,** presented “in appreciation of your effective management of the SPP Slide Survey Program”, Presented at the SPP Spring Meeting, Boston, MA. March 2015.  

**America's Top Doctors in the specialty of Pathology.** Selected by Castle Connolly Medical Ltd. March 2015
Administrative Leadership and Service

LABORATORY AND ORGANIZATIONAL LEADERSHIP

**Director, Anatomic Pathology Quality Assurance program**, Department of Pathology, Texas Children’s Hospital, January 2008 – 2009.

**Program Director, Pediatric Pathology Fellowship Program**, Children’s Hospital Colorado, University of Colorado School of Medicine, October 2010-November 2014.

- Initiated new program and achieved initial 3-year ACGME accreditation, October 2010. Created new program policies and new program manual. Created and maintained scheduling for new weekly conference series and didactic curriculum for pediatric pathology fellow and rotating residents, including faculty didactic series, case seminars, journal club, and unknown slide conference. Served as career mentor for pediatric pathology fellows. Integrated fellow into the anatomic pathology quality program and mentored quality projects. Created pre-test and post-test objective examinations for pediatric anatomic pathology rotation at Children’s Hospital Colorado. Created Semi-annual evaluation form used as “Best Practice” example by UCSOM Graduate Medical Education office. Successful ACGME re-accreditation (10 years), April 2014. Successful recruitment of pediatric pathology fellows beginning July 2011, 2012, 2014, 2015, 2016.

**Director, Quality Management Program for Anatomic Pathology**, Department of Pathology and Laboratory Medicine, Children’s Hospital Colorado, University of Colorado School of Medicine, March 2011-January 2013.

**Co-Chair, Faculty Promotions Committee, University of Colorado School of Medicine**, November 2012-June 2014. Chair of one committee meeting monthly. Subcommittee member selection for one committee meeting monthly. Presentation of FPC committee recommendations for approval at monthly Executive Committee meeting, chaired by Dean of UCSOM.

**Faculty Officer, University of Colorado School of Medicine Faculty Senate.** President-Elect 2014-15. Responsible for planning and leadership of the School of Medicine Faculty Senate meetings, attendance and reporting to the Dean’s monthly UCSOM Executive Committee meetings.


QUALITY IMPROVEMENT COMMITTEES
Member, Specimen Mislabling Performance Improvement Team, University of Kentucky, June-July 2001.

Lab Inspector, Anatomic Pathology and Cytology, College of American Pathologists, Laboratory Accreditation Program, Children’s Hospital, Jacksonville, FL, 2004.

Lab Inspector, Anatomic Pathology and Cytology, College of American Pathologists, Laboratory Accreditation Program, St. Jude Children’s Research Hospital, Memphis, TN, January 2006.

Member, Ad Hoc End-of-Life Process Committee, Children’s Hospital Colorado, Aurora, CO, November 2010-January 2011.

Member, Practice Review Team (PRT), hospital performance improvement committee responsible for peer review of adverse events involving physician and advanced practitioner decision-making and system errors, Children’s Hospital Colorado, Aurora, CO, February 2011-February 2015.

Member, Committee for Clinical Operations and Effectiveness (CCOE), formerly Clinical Effectiveness and Improvement Committee (CEIC), Children’s Hospital Colorado, Aurora, CO, March 2011-January 2013.

OTHER DEPARTMENTAL, HOSPITAL, AND UNIVERSITY ADMINISTRATIVE SERVICE

Project supervisor, Digital Imaging Project and Equipment Procurement, Texas Children’s Hospital, 2003-5. Awarded $70,000 from Capital Equipment Committee for upgrade of digital imaging equipment for pathology faculty.

Faculty supervisor, Pathologist Assistant (Karla Sternberg), Department of Pathology, Texas Children’s Hospital, 2004-2007.

Member, Organ Donation and Transplantation Ad-hoc subcommittee, Texas Children's Hospital, March 2007 – 2009.

Member, University Faculty Promotions Committee, University of Colorado School of Medicine, November 2011 – June 2014.

Member, Strategic Planning Team, Department of Pathology, Children’s Hospital Colorado, September 2012-August 2013. Participated actively in divisional team meetings to perform SWOT analysis and formulate strategic goals. Performed benchmarking study with peer children’s hospitals for justification of new faculty recruitment. Presented Strategic Vision for Pediatric Anatomic Pathology to Chief Medical Officer and PPARDI Division Chief.

Interviewer and Selection Committee Member for New Employee Hiring, Department of Pathology, Children’s Hospital Colorado, 2012-2013. Interviewed candidates for two staff assistant positions and anatomic pathology manager position. Provided input for annual performance evaluations of office staff and histology technical staff.

Member, Mid-Term Promotion Review Committee for Dr. Paul Jedlicka, University of Colorado School of Medicine Department of Pathology, May 2014.

Voting member, Executive Committee, chaired by the Dean of University of Colorado School of Medicine,
Anschutz Medical Campus, Aurora, Colorado, September 2014-February 2015.

**Search Committee Member**, Section Head of Pediatric Hematology-Oncology, Department of Pediatrics, Children’s Hospital Colorado, September-November 2014.

Member, Mid-Term Promotion Review Committee for Dr. Nicole Draper, University of Colorado School of Medicine Department of Pathology, November-December 2014.

**MEDICAL EDUCATION COMMITTEES**

Member, Hematology-Oncology Fellowship Internal Review Committee, University of Kentucky, 2001.

Member, Resident Oversight Committee, Chief Resident, Department of Pathology, University of Kentucky, 2001-2.

Member, Pathology Course Core Curriculum Committee, Department of Pathology, Baylor College of Medicine, 2004-2008.

Member, Pathology Residency Curriculum Committee, Department of Pathology, Baylor College of Medicine, 2007-2008.

Member, Scholarship Oversight Committee, Dr. Jennifer Rama, pulmonary fellow, Division of Pediatric Pulmonary Medicine, Texas Children's Hospital, 2007-2009.

Member, Scholarship Oversight Committee, Dr. Binal Kancherla, pulmonary fellow, Division of Pediatric Pulmonary Medicine, Texas Children's Hospital, 2007-2009.

Member, Graduate Medical Education Committee, University of Colorado School of Medicine, October 2010 to February 2015.

Member, Curriculum Committee/Program Evaluation Committee for Pathology Residency, Department of Pathology, UCSOM, January 2011 to February 2015.

Member, Residency Oversight Committee, Department of Pathology, UCSOM, January 2011 to February 2015.

**Chair, Internal Review Team** for Transplant Hepatology Fellowship Program (Division of Gastroenterology, Department of Medicine), University of Colorado School of Medicine, February 2011-May 2011.

**Chair, Internal Review Team** for Child Abuse Fellowship Program (Department of Pediatrics), University of Colorado School of Medicine, April 2013.

Member, Clinical Competency Committee, Anatomic and Clinical Pathology Residency Program, Department of Pathology, University of Colorado School of Medicine, March 2014 to February 2015.

Member, Clinical Competency Committee, Hematopathology Fellowship Program, Department of Pathology, University of Colorado School of Medicine, February 2014 to February 2015.

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**Educational Activities**
MEDICAL STUDENT DIDACTIC LECTURES

*Pediatric Pathology I and II*, two hours.


*Pediatric Pathology I (general topics) and II (tumor pathology)*, two hours.

*Congenital heart disease*, one hour.

MEDICAL STUDENT PROBLEM-BASED LEARNING AND SMALL GROUP TEACHING


Baylor College of Medicine, 2002-2009. Medical students, first and second year.

University of Colorado-Denver School of Medicine, Medical student curriculum, 2 hours each, 2009 to 2013.

PHYSICIAN ASSISTANT STUDENT DIDACTIC LECTURES

*Inflammation and Infectious Disease*, one hour. Physician Assistant student curriculum, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. 2000.

*Pulmonary infection*, one hour. Physician Assistant student curriculum, University of Colorado School of Medicine, Denver, CO, April 2012, April 2013, April 2014.

*Pulmonary vascular disease, Acute Lung Injury, and Interstitial lung disease*, one hour. Physician Assistant student curriculum, University of Colorado School of Medicine, Denver, CO. April 2012, April 2013, April 2014.
Obstructive lung disease and Pulmonary Function Testing, one hour. Physician Assistant student curriculum, University of Colorado School of Medicine, Denver, CO, April 2012, April 2013, April 2014.

PHARMACY STUDENT DIDACTIC LECTURES

Breast Pathology, one hour. Pharmacy student curriculum, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. 2000-2.

Dermatopathology, one hour. Pharmacy student curriculum, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. 1999-2002.

GRADUATE MEDICAL EDUCATION: PATHOLOGY RESIDENCY AND FELLOWSHIP TRAINING

Surgical Pathology Unknown Slide Conference (weekly), Texas Children’s Hospital, Baylor College of Medicine, Pediatric Pathology Fellowship 2002-3.


Gross Lung Pathology Conference (weekly), Faculty presenter, Department of Pathology, Texas Children's Hospital, Baylor College of Medicine, 2004-2009.


Surgical Pathology Unknown Conference, Residency Program, Department of Pathology, University of Colorado School of Medicine (Pediatric lung disease 2009, Bone tumors 2010, Genetic Syndromes 2011, Pediatric and Placental Pathology 2012, Pediatric Pathology Challenge Cases 2013, Pediatric Gonadal Pathology Cases November 2014).

Didactic Lectures, Residency Program, Department of Pathology, University of Colorado School of Medicine (Congenital heart disease 2010, Pediatric diffuse lung disease 2010, Pediatric lung biopsy in older children 2011, Congenital heart disease 2012, Congenital heart disease 2013, Congenital Heart Disease: Review of Pathology and Surgical Repair November 2014).

Pediatric Surgical Pathology Unknown Slide Conference (monthly), Faculty presenter, Pediatric Pathology Fellowship Program, Children’s Hospital Colorado Department of Pathology, July 2011 – June 2013, July 2014 - present.

Didactic Lectures, Pediatric Pathology Fellowship, Department of Pathology, University of Colorado School of Medicine (Pediatric lung biopsy 2011, “Name that Syndrome” Quiz 2011, Congenital Heart Workshop 2012, Pediatric Lung Cysts 2012, Metabolic Disorders 2012, Congenital Heart Workshop 2013, Genetic forms of lung disease 2014).

GRADUATE MEDICAL EDUCATION: RESIDENCY AND FELLOWSHIP TRAINING IN PEDIATRICS,
PEDIATRIC SUBSPECIALTIES, AND PEDIATRIC SURGICAL SUBSPECIALTIES

Pediatric Hematology-Oncoogy Tumor Board (weekly presenter), University of Kentucky A.B. Chandler Medical Center, 1998-2002.

Surgery-Radiology-Pathology Conference (weekly presenter), Texas Children’s Hospital, Pediatric Pathology Fellowship, 2002-3.

Surgery-Radiology-Pathology Conference (weekly attendance), Texas Children’s Hospital, 2003-9.

Pediatrics Resident Conference, Feigin Rounds (ad hoc faculty presenter), Texas Children’s Hospital, 2003-8.

Critical Care Conference (ad hoc faculty presenter), Texas Children’s Hospital, 2003-9.

Allergy-Immunology Conference (ad hoc faculty presenter), Texas Children’s Hospital, 2003-9.

Pediatric Tumor Board (weekly attendance, ad hoc faculty presenter), Texas Children's Hospital, 2003-9.

Endocrinology Conference (ad hoc faculty presenter), Texas Children’s Hospital, 2004.

Pulmonary-Radiology-Pathology Conference (monthly faculty presenter), Texas Children's Hospital, 2004-9.

Pediatrics Residency Clinical-Pathologic Correlation Conference, Texas Children’s Hospital, Baylor College of Medicine.


Pediatric Pulmonary Fellows’ conference, Pediatric Pulmonology division, Texas Children’s Hospital, Baylor College of Medicine.


Pediatric Infectious Disease Fellows’ conference, Pediatric Infectious Disease division, Texas Children’s Hospital, Baylor College of Medicine.


Neonatology Fellows’ conference, Neonatology division, Texas Children’s Hospital, Baylor College of Medicine.


Pediatric Pulmonary-Radiology-Pathology Conference (monthly presenter), Children’s Hospital Colorado, 2009-present.

Hematology-Oncoogy Fellows/Resident Conference (on-service presenter), Children’s Hospital Colorado, 2009-2012.

Pediatric Orthopedic Surgery-Radiology-Pathology Conference (monthly presenter), Children’s Hospital
Colorado, 2009-2012.

Pediatric Surgery Conference (monthly presenter), Children’s Hospital Colorado, 2009-present.

Pediatric Urology-Radiology-Pathology Conference (monthly presenter), Children’s Hospital Colorado, 2009-present.

Pediatric Pulmonary Fellows’ conference, Pediatric Pulmonary division, Department of Pediatrics, Children’s Hospital Colorado and University of Colorado School of Medicine.
   Lecture, “Pediatric pulmonary board review: Laboratory testing”, August 2014.

Children’s Interstitial Lung Disease (chILD) Team Case Review Conference (monthly presenter), The Breathing Institute, Children’s Hospital Colorado, 2011-present.

Western States Regional Pediatric Pulmonary Conference (monthly teleconference), ad hoc pathology support for Pediatric Pulmonary Fellow Presenters, Children’s Hospital Colorado, 2011-present.

Pediatric Endocrinology Conference (quarterly presenter), Children’s Hospital Colorado, 2011-present.

Pediatric Kidney Biopsy Conference (quarterly presenter), Children’s Hospital Colorado, 2014-present.

Neonatology Fellows’ conference, Neonatology Division, Department of Pediatrics, Children’s Hospital Colorado and University of Colorado School of Medicine.
   Ad hoc presenter, Morbidity and Mortality Case Conference.

Pediatric Infectious Disease conference, Department of Pediatrics, Children’s Hospital Colorado and University of Colorado School of Medicine.
   Ad hoc presenter, Weekly case conference.

MENTORSHIP FOR STUDENTS, RESIDENTS, AND FELLOWS

Medical student experience in Pathology, Baylor College of Medicine. Coordinator for Anatomic Pathology experience at Texas Children’s Hospital. 2004-2009.

Medical student elective in Pediatric Infectious Disease, Baylor College of Medicine. Coordinator for Anatomic Pathology experience at Texas Children’s Hospital. 2005-2009.

Clinical Preceptor in Pediatric Pathology, Foundations of Doctoring Thesis year course, IDPT 7655, Children’s Hospital Colorado.
   • Jing Jing Zhang, UCSOM MD PhD student, MSIII, April 23-24, May 27-30, 2014.

Clinical Preceptor in Pediatric Pathology, Pediatrics Longitudinal Block Elective Rotation, Department of
Pediatrics Residency Program Curriculum, Children’s Hospital Colorado and University of Colorado School of Medicine.

- Dr. Stephen Hawkins, 1 week training in pediatric lung pathology, July 2011.
- Dr. Jordana Elway, 2 week training in pediatric lung pathology, December 2011.
- Dr. Heather Hoch, 2 week training in pediatric lung pathology, August 2012.
- Dr. Heidi Cho, 1 week training in pediatric hematology-oncology (solid tumor pathology), May 2013.
- Dr. Jessica Wynalek, 2 week training in pediatric rheumatologic pathology, September-October 2013.

Pediatric Pulmonary Medicine Fellowship Program, Elective rotation, Children’s Hospital Colorado and University of Colorado School of Medicine.

- Dr. Deborah Liptzin, 2 week training in pediatric lung pathology, January 2013.

Site Director, Required Rotation in Pediatric Anatomic Pathology, 2-month block (6 residents annually), Pathology Residency Program, University of Colorado School of Medicine, 2010-present.

Site Director, Elective Rotation in Pediatric Anatomic Pathology at Children’s Hospital Colorado, 1-month block, Pathology Residency Program, University of Colorado School of Medicine, Aurora, Colorado.

- Dr. Andrew Rohrer, pediatric bone and soft tissue pathology elective rotation, June 2012.
- Dr. Willis Barrow, pediatric bone and soft tissue pathology elective rotation, December 2013.
- Dr. Kimi Verilhac, pediatric bone and soft tissue pathology elective rotation, September 2014.
- Dr. Kristen Zhelnin, pediatric bone and soft tissue pathology elective rotation, October 2014.

Site Director, Elective Rotation in Pediatric Anatomic Pathology at Children’s Hospital Colorado, 1-month block (average 2 residents annually), Pathology Residency Program, Penrose Medical Center, Colorado Springs, Colorado, 2010-2014.

Advisor and Mentor, Pathology Residency Program, University of Colorado School of Medicine.

- Dr. Bradford Siegele, residency career advisor in pediatric pathology, July 2013-present.
- Dr. Damon Olson, career advisor in pediatric pathology, 2013-14.
- Dr. Jerod Shows, career advisor in pediatric pathology, 2013-14.

Pediatric Pathology Fellowship Key Teaching Faculty for:

- Dr. Amy Heerema-McKenney (BCM, 2003-4), Academic pediatric pathologist at Stanford University.
- Dr. Sara Szabo (BCM, 2003-4), Academic pediatric pathologist at University of Wisconsin/Wisconsin Children’s Hospital.
- Dr. Karen Eldin (BCM, 2004-6), Academic pediatric pathologist at Baylor College of Medicine/Texas Children’s Hospital.
- Dr. Eileen McKay (BCM, 2004-6), Academic pediatric pathologist at University of Pennsylvania/Children’s Hospital of Philadelphia.
- Dr. Supriya Kuruvilla (BCM, 2006-7), Pediatric pathologist, Reading, Pennsylvania.
- Dr. Sandy Cope-Yokoyama (BCM, 2006-8), Pediatric pathologist at Cook Children’s Medical Center, Fort Worth, Texas.
- Dr. Robert Byrd (BCM, 2008-9), Pediatric pathologist, Tulsa, Oklahoma.
• Dr. Aaron Wagner (UCSOM, 2011-12), see below.
• Dr. Miran Rhee-Anagnost (UCSOM, 2012-13), see below.
• Dr. Amanda Krausert (USCOM, 2014-15), see below.

Advisor and Pediatric Pathology Fellowship Program Director, University of Colorado School of Medicine, for:

• Dr. Aaron Wagner (UCSOM, 2011-12, successful board certification; Pediatric Pathologist and Neuropathologist at Orlando Regional Medical Center, Orlando, FL).
• Dr. Miran Rhee-Anagnost (UCSOM, 2012-13, successful board certification; Pediatric Pathologist and Surgical Pathologist at LMC Pathology Services, Las Vegas, NV).
• Dr. Amanda Krausert (UCSOM, 2014-15).

CONTINUING MEDICAL EDUCATION: MENTORSHIP FOR VISITING PATHOLOGISTS AND EXTERNAL ROTATORS IN PEDIATRIC LUNG DISEASE

• Dr. CW Chow, Pediatric Pathologist, Melbourne, Australia, one-week visit to Texas Children’s Hospital, Houston TX, 2008.
• Dr. Theresa Hayes, Pediatric Pathologist, San Antonio, TX, one-week visit to Texas Children’s Hospital, Houston TX, 2008.
• Dr. Elvira Stacher, Pulmonary Pathologist, University of Graz, Austria, one-month visit to Children’s Hospital Colorado, Denver, CO, January 2012.
• Mr. Kabeer Shah, Pathology Student Fellow, University of Kentucky Department of Pathology, one-month elective rotation, co-authored chapter on Infantile Respiratory Viruses, Children’s Hospital Colorado, Denver, CO, March 2012.
• Dr. Jennifer M. Boland-Froemming, Pulmonary Pathology Fellow, Mayo Clinic Department of Pathology, two-week elective rotation, Children’s Hospital Colorado, Denver, CO, April 23-May 4, 2012.
• Dr. Erik Strom, Pathologist, University of Oslo, Oslo, Norway, two-week visit to Children’s Hospital Colorado, Aurora, CO, April 23-May 4, 2012.
• Dr. Julie Rossner, Pathology resident, University of Kentucky Department of Pathology, one-month elective rotation, Children’s Hospital Colorado, Denver, CO, November 2012.
• Dr. Angelica Oviedo, Pediatric Pathologist, Faculty member at Vancouver Children’s Hospital, Vancouver, British Columbia, Canada, one-week visit to Children’s Hospital Colorado, Aurora, CO, December 4-7, 2012.
• Dr. Julian Vyas, Chair of Pediatric Pulmonology, Auckland, New Zealand, two-day training in pediatric lung pathology, Children’s Hospital Colorado, Aurora, CO, January 21 and 28, 2013.
• Dr. Alba Torrent-Vernetta, Pediatric Pulmonologist, Barcelona, Spain. Two-day training in pediatric lung pathology, Children’s Hospital Colorado, Aurora, CO, November 4 and 5, 2013.
• Dr. Mariana Alvarez, Pediatric Pathology fellow, Pediatric Garrahan Hospital, Buenos Aires, Argentina. Two-month training in pediatric pathology and pediatric lung disease, Children’s Hospital Colorado, Aurora, CO, February –March 2014.

CONTINUING MEDICAL EDUCATION: EDUCATIONAL WORKSHOPS AND CURRICULA
Megan K. Dishop MD and Csaba Galambos MD PhD. “Pediatric Lung Biopsy: Diagnostic challenges and update on pathogenesis”, 2-hour CME workshop with handout, Society for Pediatric Pathology annual meeting (3 year cycle).

- Spring 2016 meeting: pending.
- Spring 2017 meeting: pending.

Megan K. Dishop MD and Kyle Kurek MD PhD, co-moderators. Pediatric Pathology Evening Specialty Conference, United States and Canadian Academy of Pathologists (USCAP) annual meetings, Spring 2016, Spring 2017, Spring 2018. Responsible for planning the conference curriculum and coordinating a panel of invited speakers. (CME and MOC Educational Activity).

PARTICIPATION IN PROFESSIONAL DEVELOPMENT ACTIVITIES

- AAMC Mid-Career Women Faculty Professional Development Seminar, Association of American Medical Colleges, Austin, Texas, December 3-6, 2011.
- Time Management Workshop, Academy of Medical Educators, University of Colorado School of Medicine, January 2013.
- How to Build a Teacher’s Portfolio Workshop, Academy of Medical Educators, University of Colorado School of Medicine, January 9, 2013.
- Leading Change Workshop, Academy of Medical Educators, University of Colorado School of Medicine, January 29, 2013.
- Grant Writing 101, Assistive Technology Partners, University of Colorado School of Medicine, May 2013.
- Appreciative Inquiry, Academy of Medical Educators, University of Colorado School of Medicine, September 17, 2013.
- Powers of Persuasion, Academy of Medical Educators, University of Colorado School of Medicine, October 8, 2013.
- Reflective Narrative Writing, Academy of Medical Educators, University of Colorado School of Medicine, October 17, 2013.
- DiSC Personality Assessment, Academy of Medical Educators, University of Colorado School of Medicine, October 31, 2013.
- Conflict Styles, Academy of Medical Educators, University of Colorado School of Medicine, November 12, 2013.
- Disseminating Scholarship, Academy of Medical Educators, University of Colorado School of Medicine, March 13, 2014.
- Professionalism, Academy of Medical Educators, University of Colorado School of Medicine, March 14, 2014.
- Lab Management University Certification Program, American Society of Clinical Pathologists, laboratory leadership curriculum, enrolled June 2014, pending completion.
- Leadership 101 Series: Negotiation, Academy of Medical Educators, University of Colorado School of Medicine, October 29, 2014.
- Leadership 101 Series: Conflict Management, Academy of Medical Educators, University of Colorado School of Medicine, December 2, 2014.
- Leadership 101 Series: Strategic Planning, Academy of Medical Educators, University of Colorado
Leadership 101 Series: Financial Stewardship, Academy of Medical Educators, University of Colorado School of Medicine, February 28, 2015.


Physician in Management course (Leadership, Quality, Marketing, Negotiation, Communication, Finance), American Association of Physician Leaders Summer Institute, Chicago, IL, June 23-26, 2015.

Lean Leadership Basics training, Children's Hospitals and Clinics of Minnesota, December 2015.

Grants and Contract Awards

**Modeling Airway Lung Cancer and the Role of Inflammation (Mouse Models of Human Cancer Consortium).**

Co-investigator, 5% salary support, Histologic and immunohistochemical interpretation of mouse lung pathology.

PI: Francesco J. DeMayo PhD, Department of Molecular and Cellular Biology, Baylor College of Medicine.

Funded by grant from National Institutes of Health, National Cancer Institute.

Grant number: U01 CA105352-01.

**Pulmonary Hypertension Breakthrough Initiative (PHBI) Network, Baylor Transplant Center.**

Co-investigator, 11% salary support, Baylor Transplant Center, Oversight of explant lung tissue collection according to research protocol.

PI: George P. Noon MD, Department of Surgery, Baylor College of Medicine.

Funded by grant from Cardiovascular Medical Research and Education Foundation (CMREF), $750,000.

**Grant Proposals Submitted**

**Developmental Lung Molecular Atlas Program (LungMAP), Human Tissue Core Proposal, Children’s Hospital Colorado and University of Colorado School of Medicine**

Principle Investigator, 40% salary support, Administrative oversight of Colorado Human tissue core.

Multiple PI: Megan K. Dishop MD and Csaba Galambos MD PhD, Department of Pathology, Children’s Hospital Colorado and University of Colorado School of Medicine.

Response to Request For Application from National Institutes of Health (NIH)/National Heart, Lung, and Blood Institute (NHLBI), U01, $6.7 million over 5 year period.

Editorial and Review Activities

Ad hoc manuscript reviewer for the following journals:

- *Archives of Pathology and Laboratory Medicine*
- *Histopathology*
- *Virchow’s Archive (The European Journal of Pathology)*
- *Human Pathology*
- *Pediatric and Developmental Pathology*
- *Journal of Pediatrics*

2003-present
Ad hoc grant reviewer for pleuropulmonary blastoma research:  
*St. Baldrick’s Foundation.* 2011


Editorial board member, *Archives of Pathology and Laboratory Medicine.*
  Pediatric Pathology Section Editor  2009-2011
  Associate Editor  2011-present

Editorial board member, *Pediatric and Developmental Pathology.*  2009-2015

Editorial board member, *Pediatric Allergy, Immunology and Pulmonology.*
  Section Editor, Pathology and Laboratory Medicine.  2013-present

Member, Pediatric Cancer Protocol Review Panel.
  College of American Pathologists, Advisory Panel to the CAP Cancer Committee.  2014

**Publications**

**JOURNAL ARTICLES, PEER REVIEWED**


3. **MK Dishop,** S Abraham, WN O’Connor, CC Cotrill.  Primary cardiac lipoblastoma.  *Pediatric and...*


*This paper provides recommendations of the Children’s Interstitial Lung Disease Pathology Working Group regarding pathologic handling of lung biopsies and tissue triage for special studies. This protocol has been adopted in most major children's hospitals nationwide.*


This important paper is the result of a large North American multi-institutional study of lung biopsies in infants and young children (0-2 years of age) with diffuse lung disease. It introduces a novel clinicopathologic classification of pediatric diffuse lung disease and demonstrates the distribution of pathologic entities based on consensus review, their clinical associations, and outcomes associated with specific pediatric interstitial lung disease entities.


This paper represents the largest series of patients with ABCA3 mutations causing abnormal surfactant production and release, and contributed significantly to our understanding of the clinical and pathologic phenotype of these patients, now known to represent the most common form of the genetic disorders of surfactant metabolism.


This case series and review represents the largest series of pediatric lung tumors, and includes a 25-year collection of both primary and metastatic lung tumors in a single institution and consultation experience. It establishes: (1) in surgical resection specimens, metastatic tumors are 10x more common than primary tumors; (2) inflammatory myofibroblastic tumors are the most common benign primary tumor of the lung in children; and (3) the most common primary lung malignancies in children are pleuropulmonary blastoma and carcinoid tumors.


This paper is one of the first two simultaneously-published reports of novel mutations in the CSF2RA gene encoding the GM-CSF receptor alpha chain as a cause of pulmonary alveolar proteinosis in humans, and expanded the spectrum of hereditary forms of surfactant dysfunction.


This paper validates the chILD pathology working group classification and provides a large study from a single institution documenting the relative incidence of the various forms of diffuse lung disease in children.


*This study is the first to document the pathologic features of skin and hair shafts in a group of children and adults with the very rare syndrome, Ankyloblepharon-Ectodermal defects-Cleft lip/palate (AEC). It is part of a collection of papers reporting the complete multi-disciplinary clinical phenotypes of AEC based on an international family research symposium.*


This case report is the first to document interstitial lung disease due to pulmonary myxedema in a child with unsuspected congenital hypothyroidism.


This paper is the first description of a new lung tumor in children. Fetal lung interstitial tumor (FLIT) is a rare congenital tumor, distinct from pleuropulmonary blastoma, which morphologically mimics a more immature stage of lung development and in some cases shows interstitial septal cellularity with myofibroblastic differentiation. Outcome is favorable, with no reported recurrences.


This important paper is a follow-up to the initial description of DICER1 mutations causing hereditary predisposition to pleuropulmonary blastoma in children, and includes a more comprehensive description of association neoplasms in these families.


53. May LT, Wang M, Albano E, Garrington T, Dishop MK, Macy M. Undifferentiated sarcoma of the liver:


This manuscript shows evidence by ink injection studies to support the novel concept that the “misaligned” veins in alveolar capillary dysplasia with misalignment of pulmonary veins are intrapulmonary shunt vessels linking the systemic (bronchial) and pulmonary circulations. These shunt vessels likely contribute to hypoxia in ACD/MPV, as well as other developmental disorders of the lung.


**REVIEW ARTICLES AND MONOGRAPHS**

4. **Dishop MK**. Diagnostic pathology of diffuse lung disease in children. *Pediatric Allergy, Immunology,

### LETTERS TO THE EDITOR


### BOOK REVIEWS


### TEXTBOOK EDITOR


### TEXTBOOK CHAPTERS


17. M Cajaiba, **MK Dishop.** “Pediatric Urologic Disease”. In: MK Dishop, ed. *Atlas of Pediatric Pathology.* Springer, 2014. [In press 2016]

18. M Cajaiba, **MK Dishop.** “Pediatric Renal Disease”. In: MK D SHOP, ed. *Atlas of Pediatric Pathology.* Springer, 2014. [In press 2016]

EDUCATIONAL PUBLICATIONS: CONTINUING MEDICAL EDUCATION


| No. | Author | Year | Title | Conference/Program Name | Year of Conference/Program
| --- | ------ | ---- | ---------------------------------- | -------------------------- |
| 29. | MK Dishop | 2010 | GM1 Gangliosidosis | Society for Pediatric Pathology Slide Survey Program | October 2010.
| 30. | MK Dishop | 2010 | Hemophagocytic lymphohistiocytosis | Society for Pediatric Pathology Slide Survey Program | October 2010.
| 32. | MK Dishop | 2011 | Kaposiform hemangioendothelioma | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. November 2010.
| 33. | MK Dishop | 2011 | Familial adenomatous polyposis | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. November 2010.
| 34. | MK Dishop | 2011 | Dyserminoma | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. January 2011.
| 35. | MK Dishop | 2012 | Alveolar capillary dysplasia | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. January 2011.
| 39. | MK Dishop | 2012 | Placental mesenchymal dysplasia | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. November 2011.
| 40. | MK Dishop | 2012 | Neuroblastoma | Performance Improvement Program (PIP) in Diagnostic Surgical Pathology | College of American Pathologists Surgical Pathology Committee. November 2011.
| 42. | MK Dishop | 2012 | Hypochondrogenesis | Society for Pediatric Pathology Slide Survey Program | June 2012.
| 43. | MK Dishop | 2013-17 | Granulomatous Villitis | Performance Improvement Program (PIP) In Diagnostic Surgical Pathology | College Of American Pathologists Surgical Pathology Committee. |
October 2012.


Question 1. Bronchoalveolar lavage cytology.
Question 2. Phases of lung development.
Question 3. Granulomas.
Question 4. Ultrastructure of type 1 and type 2 pneumocytes.
Question 5. Primary ciliary dyskinesia.
Question 6. Diffuse alveolar damage and acute respiratory distress syndrome.
Question 7. Asthma.
Question 8. Pulmonary infarction and embolus.
Question 9. Cytomegalovirus.
Question 10. Cystic fibrosis.
Question 11. Sputum cytology adequacy.
Question 12. Gastric aspirate for diagnosis of tuberculosis.


**Invited, submitted, and pending manuscripts**


3. Zhang L, Miyamoto S, **Dishop MK**. A rare case of giant caseous calcification of the mitral annulus in a pediatric patient: Cardiac pseudotumor and cardiac arrhythmia. *Pediatric and Developmental Pathology*. [Pending submission 2015].

4. Tai C, Jones S, **Dishop MK**, Partrick D. Bronchial atresia is the most common congenital lung malformation. *J Ped Surg* 2013. [Pending submission 2015].

5. Zhelnin K, Hayes K, Moulton S, **Dishop MK**. Clear cell myomelanocytic tumor with t(3;10) translocation. *Pediatric and Developmental Pathology*. [Pending submission 2015].


8. Dutmer CM, Asturias EJ, Smith C, **Dishop MK**, Tirosh I, Lee YN, Nortarangelo L, Gelfand EW. Late onset hypomorphic RAG2 deficiency presentation with fatal vaccine-strain VZV infection. [Pending submission 2015]

**Abstracts and Refereed Scientific Presentations**

**ABSTRACTS**


18. JT Kayser, K McClain, **MK Dishop,** CM Bollard, S May, WT Shearer, LM Noroski. Epstein Barr virus (EBV)-driven lymphoproliferative disease (LPD) and lymphoma in a girl – Mimicker of X-linked lymphoproliferative disease (XLPD).


21. C Langston, **MK Dishop.** Infant lung biopsy: Clarifying the pathologic spectrum. *Pathology*


38. C Tai, **MK Dishop**, D Partrick. Bronchial atresia is the most common lung malformation. Pacific Society of Pediatric Surgery, Beijing China, June 2012.


Invited Lectures, Grand Rounds and Visiting Professorships

LOCAL AND REGIONAL INVITED LECTURES
1. Invited lecture, “Pulmonary alveolar proteinosis and surfactant protein abnormalities in children.” Baylor College of Medicine, Houston, TX. May 2003.

NATIONAL INVITED LECTURES
1. Visiting Professor, Department of Pathology and Laboratory Medicine, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. April 2003.
   a. Invited lecture, “Selected Topics in Pediatric Pulmonary Pathology”, Advances in Diagnostic Pathology Course.
   b. Invited slide conference, “Unknown Cases in Pediatric Pathology”.
2. Visiting Professor, Department of Pathology and Laboratory Medicine, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. November 2004.
   a. Invited lecture, “Fetal hydrops”, Advances in Diagnostic Pathology Course.
   b. Invited lecture, “Hirschsprung’s Disease: Practical Approach and Differential Diagnosis”.
3. Invited presentation, "Surfactant dysfunction disorder due to ABCA3 mutations", Pediatric Pathology Specialty Case Conference, United States and Canadian Academy of Pathology, Atlanta, GA, February 2006. [CME Activity.]
4. Visiting Professor, Department of Pathology and Laboratory Medicine, University of Kentucky A.B. Chandler Medical Center, Lexington, KY. November 2006.
   a. Invited lecture, "Gastrointestinal biopsy in children: Diarrhea and malabsorption in infancy", Advances in Diagnostic Pathology Course.
5. Invited lecture, "Pediatric Interstitial Lung Disease", Pulmonary Pathology Society Meeting, Santa Fe, NM, June 2007. [CME Activity.]
7. Visiting Professor, Department of Pathology and Laboratory Medicine, University of Kentucky A.B. Chandler Medical Center, Lexington, KY, November 2007.
8. Invited presentation, "Congenital pulmonary myofibroblastic tumor". Pulmonary Pathology Specialty Conference, United States and Canadian Academy of Pathology annual meeting, Denver, CO, March 2008. [CME Activity.]
10. Invited lecture, "Lung biopsy in Older Children and Adolescents", Society for Pediatric Pathology Interim Meeting, Pediatric Lung Symposium, Louisville, KY, October 2008. [CME Activity with questions and handout.]
11. Visiting Professor, Departments of Pathology and Pulmonology, Children’s Healthcare of Atlanta, Atlanta, GA. December 2008.
   a. Invited lecture, "Pediatric lung biopsy: Perspectives from the Children's Interstitial Lung Disease network".
12. Visiting Professor, Department of Pathology, Children’s Hospital Boston, Harvard Medical School, Boston, MA. January 2009.
   b. Slide conference, “Pediatric lung disease challenge cases”.
14. Visiting Professor, Department of Pathology, University of Kentucky A.B. Chandler Medical Center, Lexington, KY, November 2010.
   a. Invited lecture, “Diagnostic challenges in pediatric lung disease”.
15. Visiting Professor, Department of Pathology, Children’s Hospital of Philadelphia, University of Pennsylvania, Philadelphia, PA, September 2011.
   b. Invited slide seminar, “Selected topics in pediatric lung disease”.
17. Invited course faculty, Laboratory Breakout Session: “Pathology and Laboratory Diagnosis of Pediatric Lung Disease”, American College of Chest Physicians (ACCP) Pediatric Pulmonary Board Review Course, Scottsdale, AZ, August 2012. [CME Activity]
18. Visiting Professor, Department of Pathology, Vanderbilt University Medical Center, Nashville, TN, November 2012.
   a. Invited lecture, “Pediatric lung disease”, Advances in Anatomic Pathology Lecture Series.
19. Visiting Professor, Department of Pathology and Laboratory Medicine, University of Kentucky A.B. Chandler Medical Center, Lexington, KY, USA, January 17, 2014.
   b. “Frozen section diagnosis in pediatric pathology”, Pathology noon conference
   d. “Update in diffuse lung disease in children”, Advances in Diagnostic Pathology, noon lecture series.
20. Invited case presentation, “Pediatric lung case: Autoimmune disease”, Pediatric Pathology Evening Specialty Conference: Pediatric lung disease, United States and Canadian Academy of Pathology, San

22. Invited course faculty, Laboratory Breakout Session: “Pathology and Laboratory Diagnosis of Pediatric Lung Disease”, American College of Chest Physicians (ACCP) Pediatric Pulmonary Board Review Course, Orlando, FL, August 2014. [CME Activity.]


INTERNATIONAL INVITED LECTURES

1. Invited lecture, “New developments in pediatric diffuse lung disease”, Pulmonary Pathology Short Course, International Academy of Pathology (IAP) Meeting, Sao Paulo, Brazil, October 2010.


3. Course Tutor and Lecturer, XXXIVth International Paediatric Pathology Association (IPPA) Advanced Course in Paediatric Pathology, La Granja, Spain, September 15-21, 2012.
   c. “Diffuse Lung Disease in Older Children.”
   d. “Pediatric Lung Cysts and Malformations.”


8. Invited lecture, “Pediatric Interstitial Lung Disease: A perspective for pathologists”, Department of Pathology, Gazi University Medical School, Ankara, Turkey, April 1, 2014.
9. Invited lecture, “Primary Lung Tumors in the Pediatric Population: Pathology and Biology”, Department of Pathology, Gazi University Medical School, Ankara, Turkey, April 1, 2014.
16. Invited lecture, “TTF1/NKX2.1 and Brain-Lung-Thyroid Syndrome”, Hot topics in Pediatric Pathology seminar. Joint Meeting of Paediatric Pathology Society and Australia New Zealand Society for Paediatric Pathology, Perth, Australia, November 21, 2015.
17. Course Tutor and Lecturer, International Paediatric Pathology Association (IPPA) Paediatric Pathology Update Course, Margaret River, Australia, November 22-27, 2015.
   a. Lecture, “Diagnostic Approach to Pediatric Lung Biopsy”.
   b. Lecture, “Update on congenital lung cysts and malformations”.
18. Invited lecture, "Pediatric Lung Disease update". International Academy of Pathology, Cologne, Germany, October 2016 (upcoming).