

October 22, 2022

**Department of Pediatrics
University of Cincinnati College of Medicine
Curriculum Vita**

Name and Personal Data:

Erik B. Hysinger, MD MSCE

Office Address: 3333 Burnet Ave
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Division of Pulmonary Medicine
Cincinnati Children's Hospital Medical Center
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Email: Erik.Hysinger@cchmc.org

Education:

08/2002-05/2006	B.S. Vanderbilt University (<i>magna cum laude</i>)
08/2006-05/2010	M.D. Vanderbilt University
08/2014-08/2016	M.S. University of Pennsylvania
08/2017-05/2018	Cincinnati Children's Core Leadership Program

Academic Appointment:

07/2010-06/2011	Intern in Pediatrics, Vanderbilt Children's Hospital, Nashville
07/2011-06/2013	Resident in Pediatrics, Vanderbilt Children's Hospital, Nashville
07/2013-06/2016	Fellowship, Pediatric Pulmonology, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania
08/2016-present	Assistant Professor, Pediatric Pulmonology, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Licensing and certification:

12/2013-present	American Board of Pediatrics
07/2014-present	Children Research
08/2016-present	Ohio State Medical Board
01/2017-present	Pregnant Women/Fetuses/Neonates
01/2017-present	Academic and Regional Health Centers Core Curriculum
01/2017-present	Human Subjects Research Core Curriculum
02/2017-present	Responsible Conduct of Research

October 22, 2022

02/2017-present Good Clinical Practice
09/2017-present CITI Curriculum for Animal Care and Use
09/2017-present Lab Core Curriculum
09/2017-present Occupation Health and Safety Awareness Training
09/2017-present Reducing Pain and Distress in Laboratory Mice and Rates
09/2017-present Working with Non-Human Primates in Research Settings
12/2019-present American Board of Pediatric Pulmonary Medicine

Awards and Honors:

2010 Vanderbilt University Pediatric Epidemiology Research Award
2014 Sprague Research Fellow
2015 ATS Fellows Track Symposium
2016 Young Investigators Research Forum
2018 Ohio Top Pediatric Pulmonologist
2018 ATS Pediatric Scientific Abstract Award

Clinical Activities:

I am a full-time clinician in one of the largest and most prestigious pulmonary divisions in the country (currently ranked #2). I perform 8 weeks of inpatient clinical service in general pulmonology and additionally provide consultation in the neonatal intensive care unit twice week for 23 weeks of the year. In the outpatient setting, I conduct approximately 100 clinics and perform more than 300 bronchoscopies every year.

Over the past seven years, I have partnered with neonatology, radiology, and cardiology to develop the Cincinnati Bronchopulmonary Dysplasia (BPD) Center, serving as the pulmonary co-director. The primary goal of the center is to provide personalized, multi-disciplinary care for neonates with BPD from birth through adolescence and improve cardiopulmonary outcomes. As part of the program, we are developing standardized algorithms for screening for pulmonary hypertension and weaning supplemental oxygen in the ambulatory setting. Through this program we have reduce mortality by 50%, the need for tracheostomy by 30%, and decreased hospital readmissions by more than 75%.

Quality Improvement:

2014 Croup Clinical Pathway, Children’s Hospital of Philadelphia
2014-2016 Unit Partners, Children’s Hospital of Philadelphia, Fellow Representative
2017 Flexible Bronchoscopy Template, Cincinnati Children’s Hospital Medical Center
2018 Home Oxygen Therapy Weaning Protocol, Cincinnati Children’s Hospital Medical Center

Research and Scholarly Activities:

October 22, 2022

My research currently focuses on the diagnosis, evaluation, and impact of dynamic airway collapse on respiratory outcomes in neonates with bronchopulmonary dysplasia and aerodigestive disorders.

Grants and Contracts

Ongoing Research Support:

National Heart, Lung, and Blood Institute R01 HL 1446689

Title: MRI Phenotyping of Early BPD and Prediction of Outcomes

Dates of Study: 04/2018-03/2023

Principal Investigator: Jason Woods, PhD

Role: Co-investigator

Grant Support: \$3,900,945, 5% effort

Patient Centered Outcomes Research Institute

Title: Monitoring Oxygen Levels of Premature Babies at Home and in the Clinic – The RHO Trial

Dates of Study: 09/2020-01/2023

Principal Investigator: Larry Rhein

Role: Site Principal Investigator

Grant Support: \$1,262,793, 5% effort

Research Innovation Pilot Grant

Title: Tracheal Distensibility, Diameter, and Bronchodilator Response

Dates of Study: 05/2022- 05/2023

Role: Principal investigator

Grant Support: \$75,000

Completed Research Support:

Vanderbilt University Pediatric Epidemiology Research Grant

Title: Outcomes in Adolescent Suicide

Dates of Study: 06/2010-08/2010

Role: Principal investigator

Grant Support: \$5,000

Vanderbilt Institution for Clinical and Translational Research #VR6914

Title: Metabolic Profiles in Pulmonary Arterial Hypertension

Dates of Study: 01/2013-06/2013

Role: Principal investigator

Grant Support: \$5,000

National Institute of Health Training Grant in Cardiology and Pulmonary Clinical Research #HL-007891

Title: Outcomes in Neonates with Bronchopulmonary Dysplasia and

October 22, 2022

Tracheobronchomalacia

Dates of Study: 07/2014-07/2016

Role: Principal investigator

Grant Support: \$108,432

Research Innovation Pilot Grant

Title: Quantitative MRI Assessment of Dynamic Trachea Collapse: Validation, Energy Expenditure, and Outcomes

Dates of Study: 01/2018- 01/2019

Role: Principal investigator

Grant Support: \$75,000

ARC Grant

Title: CCHMC as a National Leader in BPD

Dates of Study: 01/2018-12/2020

Role: Co-Principal Investigator

Grant Support: \$1,997,947, 10% effort

Radiology Clinical Research Pilot Funding

Title: C-arm Cone Beam CT and Augment Fluoroscopy Guided Transbronchial Biopsy: Safety and Feasibility

Dates of Study: 09/2020-09/2021

Principal Investigator: John Racadio, Erik Hysinger, and Christopher Towe

Role: Co-Principal Investigator

Grant Support: \$8,720.50 direct cost

Publications

Peer reviewed articles:

1. Jiang X, Klimovich V, Arunkumar AI, **Hysinger E**, Wang Y, Ott RD, Guler GD, Weiner B, Chazin WJ, Fanning E. Structural Mechanism of RPA loading on DNA during activation of a simple pre-replication complex. *EMBO J*. 2006. 25(23): 5516-26. doi: 10.1038/sj.emboj.7601432. Epub 2006 Nov 16. PMID: 17110927.
2. **Hysinger E**, Callahan T, Caples L, Fuchs C, Shelton R, Cooper W. Suicidal Behavior Differs Among Early and Late Adolescents Treated with Antidepressant Agents. *Pediatrics*. 2011. 128(3): 447-454. doi: 10.1542/peds.2010-3262. Epub 2011 Aug 8. PMID: 21824883.
3. **Hysinger E**, Manthia R, and Flemming A. Enterovirus Meningitis with Marked Pleocytosis. *Hospital Pediatrics*. 2012. 2(3): 173-175. doi: 10.1542/hpeds.2012-0008. PMID: 24319922.
4. **Hysinger E**, **Roizen J**, Mentch F, Vazquez L, Connolly J, Bradfield J, Almoguera B, Sleiman P, Allen J, Levine M, and Hakonarson H. Mendelian Randomization Analysis Demonstrates that Low Vitamin D Is Unlikely Causative of Pediatric Asthma. *J. Allergy Clin Immunol*. 2016. 136 (6): 1747-1749. doi:

- 10.1016/j.jaci.2016.06.056. Epub 2016 Aug 20. PMID: 27554823.
5. Almoguera B, Vazquez L, Mentch F, Connolly J, Pacheco J, Sundaresan A, Peissig P, Linneman J, McCarty C, Crosslin D, Carrell D, Lingren T, Namjou-Khales B, Harley J, Larson E, Jarvik G, Brilliant M, Williams M, Kullo I, **Hysinger E**, Sleiman P, Hakonarson H. Identification of four novel loci in asthma in European and African American. *Am J Respir Crit Care Med*. 2017. 195(4): 456-463. doi: 10.1164/rccm.201604-0861OC. PMID: 27611488.
 6. **Hysinger E**, Friedman N, Shinohara R, Padula M, Zhang H, Panitch H, and Kawut S. Increased Morbidity in Neonates with Bronchopulmonary Dysplasia and Tracheobronchomalacia. *Ann Amer Thorac Soc*. 2017. 14(9): 1428-1435. doi: 10.1513/AnnalsATS.201702-178OC. Epub 2017 Jun 16. PMID: 28622012.
 7. Egnatchik RA, Brittain EL, Shah AT, Fares WH, Ford HJ, Monahan K, Kang CJ, Kocurek EG, Zhu S, Luong T, Nguyen TT, **Hysinger E**, Austin ED, Skala MC, Young JD, Roberts LJ, Hemnes AR, West J, Fessel JP. Dysfunctional BMP2 Signaling Drives and Abnormal Endothelial requirement for Glutamine in Pulmonary Arterial Hypertension. *Pulm Circ*. 2017. 7(1): 186-199. doi: 10.1086/690236. eCollection 2017 Mar. PMID: 28680578.
 8. Fierro J, **Hysinger E**, Piccione J, Panitch H, Blinman T, Laje P, Kirpalani H, Zhang H, and Munson D. Balloon Airway Occlusion to Elucidate the Clinical Impact of Pulmonary Lobar Hyperinflation. *Pediatr Allergy Immunol Pulmonol*. 2018. 31(3): 186-190.
 9. Sood N, Connolly J, Mentch F, Vazquez L, **Hysinger E**, eMERGE Outcomes WorkGroup, and Hakonarson H. Leveraging Electronic Health Records to Assess the Role of ADRB2 SNPs in Predicting Exacerbation Frequency in Asthma Patients. *Pharmacogenet Genomics*. 2018. 28(11): 256-259. doi: 10.1097/FPC.0000000000000355. PMID: 3033491.
 10. Friedman N, McDonough J, Zhang X, **Hysinger E**, Adams K, and Allen J. Bronchodilator Responsiveness Assessed by Forced Oscillometry and Multiple Breath Washout Techniques in Preschool Children. *Pediatr Investig*. 2018. 2(2): 83-89 doi: 10.1002/ped4.12034. eCollection 2018 Jun. PMID: 32851238.
 11. Lagatta J, **Hysinger E**, Zaniletti I, Wymore E, Vyas-Read S, Nelin L, Truog W, Padula M, Porta N, Yallapragada S, Savani R, Grover T, Engle W, DiGeronimo B, Murthy K. The Impact of Pulmonary Hypertension in Preterm Infants with Severe BPD Through One Year. *J. Pediatrics*. 2018. 203: 218-224. doi: 10.1016/j.jpeds.2018.07.035. Epub 2018 Aug 29. PMID: 30172426.
 12. **Hysinger E**, Friedman N, Jensen E, Zhang H, and Piccione J. Bronchoscopy in Neonates with Severe Bronchopulmonary Dysplasia in the NICU. *J. Perinat*. 2019. 39(2): 263-268. doi: 10.1038/s41372-018-0280-y. Epub 2018 Dec 5. PMID: 3051879.
 13. Bates A, Higano N, **Hysinger E**, Fleck R, Hahn A, Fain S, Kingma P, and Woods J. Quantitative Assessment of Regional Dynamic Airway Collapse in Neonates via Retrospectively Respiratory-gated ¹H Ultrashort Echo-time (UTE) MRI. *J Magn Reson Imaging*. 2019. 49(3): 659-667. doi: 10.1002/jmri.26296. Epub 2018 Sep 25. PMID: 30252988.
 14. Yoder L, Higano N, Schapiro A, Fleck R., **Hysinger E**, Bates A, Kingma P, Merhar S, Fain S, and Woods J. Elevated Lung Volumes in Neonates with

- Bronchopulmonary Dysplasia Measured by Free-breathing MRI. *Pediatric Pulmonology*. 2019. 54 (8): 1311-1318. doi: 10.1002/ppul.24378. Epub 2019 May 27. PMID: 31134768.
15. Kuranga A, **Hysinger E**, Stamper D, and Benzaquen S. Implantable Endobronchial Valves in Pediatric Patients with Persistent Leak. *Clinical Case Reports*. 2019. 7 (12): 2410-2413. doi: 10.1002/ccr3.2490. eCollection 2019 Dec. PMID: 31893070.
 16. Bouso J, Yendur O, **Hysinger E**, Planet P, Haas A, Goldfarb G, and Piccione J. EBUS Guided Biopsy is Feasible, Safe, and Improves Diagnostic Yields in Immunocompromised Children. *Am J Resp Crit Care Med*. 2020. 201(3): 384-386. doi: 10.1164/rccm.201907-1372LE. PMID: 31626557.
 17. Vyas-Read S, Wymore E, Zaniletti I, Murthy K, Padula M, Truog W, Savani R, Yallapragada S, Logan J, Zhang H, **Hysinger E**, Grover T, Natarajan G, Nelin L, Porta N, Potoka K, DiGeronimo R, and Lagatta J. Utility of Echocardiography in Predicting Mortality in Infants with Severe Bronchopulmonary Dysplasia. *J Perinat*. 2020. 40 (1): 149-156. doi: 10.1038/s41372-019-0508-5. Epub 2019 Sep 30. PMID: 31570799.
 18. **Hysinger E**, Bates A, Higano N, Bencotter D, Fleck R, Hart C, Burg G, De Alarcon A, Kingma P, and Woods J. Ultrashort Echo-time MRI for the Assessment of Tracheomalacia in Neonates. *Chest*. 2020. 157 (3): 596-602. doi: 10.1016/j.chest.2019.11.034. Epub 2019 Dec 17. PMID: 31862439.
 19. Polverino F, **Hysinger E**, Gupta N, Olin Tod, Abman S, and Woods J. Imaging the Underlying Pathologies of Long-term BPD and Early COPD. *Am J Med*. 2020. 133 (60): 757-760. doi: 10.1016/j.amjmed.2019.12.009. Epub 2020 Jan 16. PMID: 31954683.
 20. **Hysinger E**, Hart C, Burg G, De Alarcon A, and Bencotter D. Differences in Flexible and Rigid Bronchoscopy for Assessment of Tracheomalacia. *Laryngoscope*. 2021. 131(1): 201-204. doi: 10.1002/lary.28656. Epub 2020 Apr 13. PMID: 32282085.
 21. Gouwens K, Higano N, Marks K, Stimpfi JN, **Hysinger E**, Woods J, Kingma P. MRI Evaluation of Regional Lung Tidal Volumes in Severe Neonatal Bronchopulmonary Dysplasia. *Am J Respir Crit Care Med*. 2020. 202(7): 1024-1031. doi: 10.1164/rccm.202001-0213OC. PMID: 32459506.
 22. Guanatilaka CC, Higano NS, **Hysinger E**, Gandhi D, Fleck R, Hahn A, Fain S, Woods J, and Bates A. Increased Work of Breathing Due to Tracheomalacia in Neonates. *Ann Amer Thorac Soc*. 2020. 17(10): 1247-1256. doi: 10.1513/AnnalsATS.202002-162OC. PMID: 32579852.
 23. Brewington J, Bencotter D, Torres-Silva C, McHendry C, Lim F, Cortezzo D, and **Hysinger E**. Flexible Bronchoscopic. Cyroextraction in a Neonate on Extra-Corporeal Membrane Oxygenation. *Am J Respir Crit Care Med*. 2020. 203(5): 633-635. doi: 10.1164/rccm.202007-2817LE. PMID: 33095995.
 24. Yang MM, Higano NS, Gunatilaka C, Hyinsger EB, Amin RS, Woods JC, Bates AJ. The Position of Subglottic Stenosis Affects Neonatal Work of Breathing. *Laryngoscope*. 2021. 131(4): 1220-1226. doi: 10.1002/lary.29169. PMID: 33280109.
 25. Ghandi D, Rice A, Gunatilak C, Higano N, Fleck R, de Alarcon A, Hart C, Kuo I, Woods J, **Hysinger E**, and Bates A. Quantitative Evaluation of Subglottic Stenosis

- Using Ultrashort Echo-time MIR in a Rabbit Model. *Laryngoscope*. 2021. 131(6): 1971-1979. doi: 10.1002/lary.29363. PMID: 33399240.
26. Burg G, Hossain M, Wood R, and **Hysinger E**. Evaluation of Agreement on the Presence and Severity of Tracheobronchomalacia by Dynamic Flexible Bronchoscopy. *Ann Amer Thorac Soc*. 2021. 18(10): 1749-1752. doi: 10.1513/AnnalsATS.202009-1142RL. Online ahead of print. PMID: 34000226.
 27. Gunatilaka C, **Hysinger E**, Schuh A, Gandhi D, Higano N, Xiao Q, Hahn A, Fain S, Fleck R, Woods J, and Bates A. Neonates with Tracheomalacia Generate Auto-PEEP via Glottis Closure. *Chest*. 2021. 160(6): 2168-2177. doi: 10.1016/j.chest.2021.06.021. PMID: 34157310.
 28. Pajor N, Kaiser M, Brinker M, Mullen L, Schuler C, Hart C, Britto M, Torres-Silva C, **Hysinger E**, Amin R, and Benscoter D. Improving Home Ventilator Alarm Use Among Children Requiring Chronic Mechanical Ventilation. *Pediatrics*. Accepted for Publication. doi: 10.1542/peds.2021-051968. PMID: 35641471
 29. Adaikalam S, Higano N, **Hysinger E**, Bates A, Fleck R, Schapiro A, House M, Nathan A, Ahfeld S, Brady J, Woods J, and Kingma P. Tracheostomy Prediction Mode in Neonatal Bronchopulmonary Dysplasia via Lung and Airway MRI. *Pediatr Pulmonol*. 2022. Online Ahead of Print. doi: 10.1002/ppul.25826. PMID: 35029053.
 30. Willmering M, Walkup L, Niedbalski P, Wang H, Wang Z, **Hysinger E**, Myers K, Towe C, Driehuys B, Cleveland Z, and Woods J. Pediatric ¹²⁹Xe Gas-Transfer MR-Feasibility and Applicability. *J Magn Reson Imaging*. 2022. Online Ahead of Print. DOI: 10.1002/jmri.28136. PMID: 35244302.
 31. Higano N, Gandhi D, Xiao Qiwei, Gunatilaka C, **Hysinger E**, Fleck R, Wood J, and Bates A. Virtual Bronchoscopy of Neonatal Airway Malacia Via High-Resolution, Respiratory-gated MRI. *Am J Respir Crit Care Med*. Online Ahead of Print. doi: 10.1007/s00247-021-05250-1. PMID: 35122130
 32. Polverino F, Washko G, Covar R, **Hysinger E**, Hackett T, Bhatt T, Brusselle G, and Dharmage S. The Low Flyers: Persistent Airflow Limitation in Youngs Adults. *Lancet Resp Med*. 2022. Online Ahead of Print. doi: 10.1016/S2213-2600(22)00250-8. PMID: 35850124.
 33. House M, Klein S, Parham D, **Hysinger E**, and Brady J. Frequent Hypoxemia Found in Infants with Bronchopulmonary Dysplasia After Weaning Home Oxygen. *Pediatr Pulmonol*. 2022. Online Ahead of Print. doi: 10.1002/ppul.26076. PMID: 35832023.
 34. Kao D, Buck L, **Hysinger E**, Bates A, Gunatilaka C, and Rutter M. Laryngotracheal Separation Through the Cricoid Ring for Management of Tracheobronchomegaly. *Int J Pediatr Otorinolaryngol*. 2022. Online Ahead of Print. doi: 10.1016/j.ijporl.2022.111266. PMID: 35964494.
 35. Gunatilaka C, **Hysinger E**, Schuh A, Xiao Q, Gandhi D, Higano N, Ignatiuk D, Hossain M, Fleck R, Wood J, and Bates A. Predicting Tracheal Work of Breathing in Neonates Based on Radiological and Pulmonary Measurements. *J Appl Physiol*. 2022. Online Ahead of Print. doi: 10.1152/jappphysiol.00399.2022. PMID: 36049059.
 36. Franklin S, Fierro J, **Hysinger E**, Phinizy P, and Piccione J. Hemosiderin Laden Macrophages in BAL Samples of Children with Bronchopulmonary Dysplasia. *J*

Pediatr. 2022. Online Ahead of Print. doi: 10.1016/j.jpeds.2022.09.019.
PMID: 36130636

37. **Hysinger E** and Woods J. Seeing Premature Lung Disease: Hyperpolarized Xe MRI. *Am J Resp Crit Care Med.* 2022. Online Ahead of Print. doi: 10.1164/rccm.202208-1612ED. PMID: 36067056

Books, chapters, reviews, and other Publications:

1. Hayden L, Boyer D, **Hysinger E**, Moore P, Faro A, Wilson K, and Thomson C, Flexible Airway Endoscopy in Children. *Ann Amer Thorac So.* 2015. 12(12). 1873-1875. doi: 10.1513/AnnalsATS.201509-612CME. PMID: 26653192.
2. **Hysinger E** and Pantich H. Paediatric Tracheomalacia. *Paediatr Resp Rev.* 2016. 17(9): 9-15. doi: 10.1016/j.prrv.2015.03.002. Epub 2015 Mar 17. PMID: 25962857.
3. **Hysinger E.** Laryngomalacia, Tracheomalacia, and Bronchomalacia. *Current Problems in Pediatric and Adolescent Health Care.* 2018. 48(4):113-118. doi: 10.1016/j.cppeds.2018.03.002. Epub 2018 Apr 3. PMID: 29622320.
4. Mandel E, **Hysinger E**, and McGrath-Morrow S. Disease Phenotyping of Infants with Severe Bronchopulmonary Dysplasia. *Am J Respir Crit Care Med.* 201(11): 1327-1329. doi: 10.1164/rccm.202002-0305ED. PMID: 32176520.
5. **Hysinger E.** Evaluation of Airway Dynamics. *Diagnostic and Interventional Bronchoscopy in Children 1st Edition.* 2020.
6. **Hysinger E.** Central Airway Issues in Bronchopulmonary Dysplasia. *Pediatr Pulmonol.* 56(11):3518-3526. doi: 10.1002/ppul.25417. PMID: 33835725.
7. Piccione J, **Hysinger E**, and Vicencio A. Pediatric Advanced Diagnostic and Interventional Bronchoscopy. *Seminars in Pediatric Surgery.* 30(3): Online Ahead of Print. doi: 10.1016/j.sempedsurg.2021.151065. PMID: 34172210.
8. Clemmens C, **Hysinger E**, and Piccione J. Airway evaluation: Bronchoscopy, laryngoscopy, and tracheal aspirates. *Goldsmith's Assisted Ventilation of the Neonate 7th Edition.* 2021.
9. Higano N, Bates A, Gunatilaka C, **Hysinger E**, Critser P, Hirsch R, Woods J, and Fleck R. Bronchopulmonary Dysplasia from Chest X-rays to MRI and CT: Adding Value. *Pediatr Radiol.* Online Ahead of Print. doi: 10.1007/s00247-021-05250-1. PMID: 35122130.
10. **Hysinger E**, Higano N, Critiser P, and Woods J. Imaging in Neonatal Respiratory Disease. *Paediatr Resp Rev.* Online Ahead of Print. doi: 10.1007/s00247-021-05250-1 PMID: 35122130.

Quality Review of Publications:

1. **Hysinger E** and Pantich H. Paediatric Tracheomalacia. *Paediatr Resp Rev.* 2016. 17(9): 9-15. doi: 10.1016/j.prrv.2015.03.002. Epub 2015 Mar 17. PMID: 25962857. Citations: 96. 2017=15, 2018=19, 2019=23, 2020=15, 2021=12
 - o This is a comprehensive view of the development, physiology, diagnosis and treatment of tracheomalacia in children. I designed and drafted the manuscript.
2. **Hysinger E**, Friedman N, Jensen E, Zhang H, and Piccione J. Bronchoscopy in

- Neonates with Severe Bronchopulmonary Dysplasia in the NICU. *J. Perinat.* 2019. 39(2): 263-268. doi: 10.1038/s41372-018-0280-y. Epub 2018 Dec 5. PMID: 3051879. Citations: 20. 2017=NA, 2018=NA, 2019=4, 2020=8, 2021=8
- This is the first study to define the findings of bronchoscopy in neonates with severe bronchopulmonary dysplasia. We discovered that dynamic airway lesion like tracheobronchomalacia were present in more than half of neonates with severe bronchopulmonary dysplasia. I designed the study, collected, analyzed, interpreted the data, and drafted the manuscript.
3. **Hysinger E**, Friedman N, Shinohara R, Padula M, Zhang H, Panitch H, and Kawut S. Increased Morbidity in Neonates with Bronchopulmonary Dysplasia and Tracheobronchomalacia. *Ann Amer Thorac Soc.* 2017. 14(9): 1428-1435. doi: 10.1513/AnnalsATS.201702-178OC. Epub 2017 Jun 16. PMID: 28622012. Citations: 59. 2017=3, 2018=4, 2019=14, 2020=21, 2021=16
- This is the first cohort study to evaluate the impact of tracheobronchomalacia on neonates with bronchopulmonary dysplasia. We found that tracheobronchomalacia is associated with longer more complicated hospitalizations and the need for increased respiratory and feeding support at hospital discharge I designed the study, collected, analyzed, interpreted the data, and drafted the manuscript.
4. Lagatta J, **Hysinger E**, Zaniletti I, Wymore E, Vyas-Read S, Nelin L, Truog W, Padula M, Porta N, Yallapragada S, Savani R, Grover T, Engle W, DiGeronimo B, Murthy K. The Impact of Pulmonary Hypertension in Preterm Infants with Severe BPD Through One Year. *J. Pediatrics.* 2018. 203: 218-224. doi: 10.1016/j.jpeds.2018.07.035. Epub 2018 Aug 29. PMID: 30172426. Citations: 41. 2017=NA, 2018=0, 2019=7, 2020=18, 2021=16
- In this large, multi-site cohort study we identified increased morbidity and mortality for patients with bronchopulmonary dysplasia and pulmonary hypertension. I designed the study, collected, analyzed, interpreted the data, and edited the manuscript.
5. **Hysinger E**, Bates A, Higano N, Benschoter D, Fleck R, Hart C, Burg G, De Alaracon A, Kingma P, and Woods J. Ultrashort Echo-time MRI for the Assessment of Tracheomalacia in Neonates. *Chest.* 2020. 157 (3): 596-602. doi: 10.1016/j.chest.2019.11.034. Epub 2019 Dec 17. PMID: 31862439. Citations: 17. 2017=NA, 2018=NA, 2019=NA, 2020=7, 2021=10
- This was validation study that demonstrates the ability of ultrashort echo-time MRI to identify the location and quantify the severity of tracheomalacia without sedation or ionizing radiation. I designed the study, collected, analyzed, interpreted the data, and drafted the manuscript.
6. Guanatilaka CC, Higano NS, **Hysinger E**, Gandhi D, Fleck R, Hahn A, Fain S, Woods J, and Bates A. Increased Work of Breathing Due to Tracheomalacia in Neonates. *Ann Amer Thorac Soc.* 2020. 17(10): 1247-1256. doi: 10.1513/AnnalsATS.202002-162OC. PMID: 32579852 Citations: 10. 2017=NA, 2018=NA, 2019=NA, 2020=3, 2021=7
- This study used our previously validated ultrashort echo-time MRI to quantify the work of breathing related to tracheomalacia in neonates. I designed the study, interpreted the data, and edited the manuscript.

7. Gunatilaka C, **Hysinger E**, Schuh A, Gandhi D, Higano N, Xiao Q, Hahn A, Fain S, Fleck R, Woods J, and Bates A. Neonates with Tracheomalacia Generate Auto-PEEP via Glottis Closure. *Chest*. Online Ahead of Print
doi: 10.1016/j.chest.2021.06.021. PMID: 34157310. Citations: 0. 2017=NA, 2018=NA, 2019=NA, 2020=NA, 2021=0
 - This study identified a previously unrecognized relationship between vocal cord motion and tracheomalacia in neonates. I designed the study, interpreted the data, and edited the manuscript.

Abstracts:

1. **Hysinger E**, Callahan T, Caples L, Fuchs C, Shelton R, Cooper W. Suicidal Behavior Differs Among Early and Late Adolescents Treated with Antidepressant Agents. Pediatric Academic Society: Vancouver, Canada, May 1-4, 2010. Poster Presentation.
2. **Hysinger E**, Fessel J, Fox F, Cunningham G, Summar M, Loyd J, and Austin E. Amino Acid and Urea Cycle Metabolism Is Altered in Patients with Pulmonary Arterial Hypertension. American Thoracic Society: Philadelphia, PA, May 17-22, 2013. Oral Presentation.
3. **Hysinger E**, **Roizen J**, Mentch F, Connolly J, Bradfield J, Almoguera B, Sleiman P, Allen J, Levine M, and Hakonarson H. A Cross-Sectional and Mendelian Randomization Analysis of Vitamin D Status and Asthma. Respiratory Disease Young Investigators Forum: Atlanta, GA, October 8-11, 2015. Oral Presentation.
4. **Hysinger E**, Friedman N, Shinohara R, Padula M, Zhang H, Panitch H, and Kawut S. Increased Morbidity in Neonates with Bronchopulmonary Dysplasia and Tracheobronchomalacia. American Thoracic Society: San Francisco, CA, May 13-18, 2016. Poster Discussion.
5. Zhang H, **Hysinger E**, and Piccione J. Tracheobronchomalacia May Contribute to Cardiopulmonary Instability in Infants with Severe Bronchopulmonary Dysplasia. Pediatric Academic Society San Francisco, CA, May 6-9, 2017. Poster.
6. **Lagatta J**, **Hysinger E**, Zaniletti I, Wymore, E, Vyas-Read S, Nelin L, Truog W, Padula M, Porta N, Yallapragada S, Savani R, Grover T, Engle W, DiGeronimo B, Murthy K. The Impact of Pulmonary Hypertension in Preterm Infants with Severe BPD: A Multi-Center Comparison of NICU and Readmission Outcomes. Pediatric Academic Society: San Francisco, CA, May 6-9, 2017. Oral Presentation.
7. **Hysinger E**, Zhang H, Piccione J. Flexible Bronchoscopy Is Safe and Changes Management in Neonates with Severe Bronchopulmonary Dysplasia in the NICU. American Thoracic Society: May 19-24, 2017. Poster.
8. Burg G, Hossain M, Wood R, **Hysinger E**, Evaluation of Agreement on Presence and Severity of Tracheobronchomalacia in Pediatric Patients by Dynamic Flexible. American Thoracic Society: San Diego, CA, May 18-23, 2018. Poster.
9. Yoder LM, Higano NS, Schapiro A, Fleck R, **Hysinger E**, Bates AJ, Fain S, Woods J. Elevated lung volumes in neonates with bronchopulmonary dysplasia measured via free-breathing pulmonary MRI. American Thoracic Society: San Diego, CA, May 18-23, 2018. Poster Discussion.

10. Bates S, Higano NS, **Hysinger E**, Fleck RJ, Hahn A, Fain SB, Kingma P, Amin RS, Woods JC. Quantitative assessment of airway dynamics and abnormalities during restful breathing in infants using MRI. American Thoracic Society: San Diego, CA, May 18-23, 2018. Poster presentation.
11. **Hysinger E**, Bates A, Higano N, Hart C, Bencotter D, De Alacron A, Fain S, Kingma P, Woods J. Quantitative Assessment of Tracheomalacia Using Ultra-Short Echo Time MRI. American Thoracic Society: San Diego, CA, May 18-23, 2018. Oral presentation. Best in Pediatrics.
12. George A, **Hysinger E**, Torres-Silva C, Brewington J, Hart C, de Alacron A, Byrnes J, Goldstein B, Bencotter D. Etiologies and Outcomes of Pulmonary Hemorrhage in Children: A Single Institutional Series. American Thoracic Society: San Diego, CA, May 18-23, 2018. Poster presentation.
13. Higano N, Bates A, **Hysinger E**, Fleck R, Hahn A, Fain S, Kingma P, Woods J. Quantitative geometric assessment of regional airway collapse in neonates via retrospectively respiratory-gated ¹H UTE MRI. Proceedings of the International Society of Magnetic Resonance in Medicine: Paris, France, Jun 2018. Oral presentation.
14. Bates A, Higano N, **Hysinger E**, Fleck R, Kingma P, Amin R, Woods J. Calculating Breathing Effort in Neonates with Tracheomalacia using Computational Fluid Dynamics with High-Resolution MRI. 8th World Congress in Biomechanics: Dublin, Ireland, July 8-12, 2018. Oral presentation.
15. Higano N, Bates A, Fleck R, Hahn A, Fain S, Kingma P, **Hysinger E**, Woods JC. Quantifying dynamic tracheal collapse in neonates with bronchopulmonary dysplasia using respiratory-gated MRI. Proceedings of the Radiological Society of North America: Chicago, IL, Nov 25-30, 2018. Oral presentation.
16. Higano N, Bates A, **Hysinger E**, St. Onge I, Fleck R, Kingma P, Woods J. Quantitative MRI assessment of dynamic tracheal collapse in neonates with bronchopulmonary dysplasia, with correlation to later tracheostomy requirement. The Sixth Annual Meeting of Contemporary Management of Aerodigestive Disease in Children: Nashville, TN, Dec 6-8, 2018. Oral Presentation.
17. Higano N, Bates A, **Hysinger E**, St Onge I, Fleck R, Kingma P, Woods J. Dynamic tracheal collapse and correlation to later tracheostomy in neonates with bronchopulmonary dysplasia via quantitative ultrashort echo-time MRI. American Thoracic Society: Dallas, TX May 15-20, 2019. Oral presentation.
18. Yang MM, Higano NS, Gunatilaka C, **Hysinger E**, Amin RS, Woods JC, Bates AJ. The Position of Subglottic Stenosis Affects Neonatal Work of Breathing. American Thoracic Society: Dallas, TX May 15-20, 2019. Poster Presentation.
19. St Onge I, Hart C, deAlarcon A, Miller C, Pentiuk S, Torres-Silva CA, **Hysinger E**, Bencotter DT. Nutritional Status in Pediatric Aerodigestive Referrals Compared to General Pulmonary Referrals. American Thoracic Society: Dallas, TX May 15-20, 2019. Poster presentation.
20. St Onge I, Higano NS, Bates AJ, Fleck RJ, Kingma PS, Woods JC, **Hysinger E**. Length of Stay and Readmission Frequency For Infants With Bronchopulmonary Dysplasia and Tracheomalacia. American Thoracic Society: Dallas, TX May 15-20, 2019. Poster presentation.

21. Higano N, Bates A, **Hysinger E**, Fleck R, Hahn A, Fain S, Kingma P, Woods J. Virtual Bronchoscopy of Neonatal Dynamic Airway Collapse with Ultrashort Echo-time MRI. International Society for Magnetic Resonance in Medicine. April 21, 2020. Oral Presentation.
22. Rice A, Bates A, Gandhi D, Gunatilaka C, Higano N, Kuo IC, De Alarcon A, Woods J, Amin R, **Hysinger E**, The Effect of Subglottic Stenosis and Balloon Dilation on Tracheal Dynamics and Shape. American Thoracic Society: Philadelphia, PA May 15-20, 2020. Poster Presentation.
23. Gandhi D, Bates A, Higano N, Gunatilaka C, Fleck R, De Alarcon A, Hart C, Kuo IC, Woods J, **Hysinger E**, Detecting Subglottic Stenosis with MRI and Correlating with Endotracheal Tube Sizing Measures. American Thoracic Society: Philadelphia, PA May 15-20, 2020. Poster Discussion.
24. **Hysinger E**, St. Onge I, Higano N, Fleck RJ, Kingma P, Woods, J. Neonatal Pulmonary Magnetic Resonance Imaging Predicts Respiratory Outcomes through Two Year of Life in Bronchopulmonary Dysplasia. Philadelphia, PA May 15-20, 2020. Oral Presentation.
25. Adaikalam S, Higano N, **Hysinger E**, Woods J, Kingma, P. Clinically-relevant Tracheostomy Prediction Model in Neonatal Bronchopulmonary Dysplasia Via Lung and Airway MRI. Philadelphia, PA May 15-20, 2020. Oral Presentation. Best in Pediatrics.
26. Gunatilaka C, Bates A, Higano, N, Hahn A, Fain S, **Hyinsger E**, Fleck R, and Woods J. Work of Breathing in Neonates with and without Tracheomalacia Using Dynamic High-Resolution MRI Combined with Computational Fluid Dynamics. Miami, FL May 9-15, 2020. Oral Presentation.
27. Lin NY, **Hysinger E**, and Simakajornboon N. Characterization of Sleep-Disordered Breathing in Children with Bronchopulmonary Dysplasia Referred to the Sleep Laboratory. Philadelphia, PA May 15-20, 2020. Oral Presentation.
28. Higano N, Mukthapuram, S, **Hysinger E**, Fleck R, and Woods J. Hyperinflation is More Clinically Relevant Than Hyperdensity in Neonatal Lung Disease of Prematurity Via 3D MRI. Radiological Society of North America. Chicago, IL November 28-December 2, 2021. Oral Presentation. RSNA Trainee Research Prize Application.
29. **Hysinger E**, Towe C, Raddio J, Wallace C, Hales J, Cummins A, Hilvert N, Sketch M, Doerning C, and Kaul A. Functional Lumen Imaging: A Novel Assessment of Tracheomalacia. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Poster Presentation.
30. Gunatilaka C, **Hysinger E**, Schuh A, Gandhi D, Higano N, Xiao Q, Fleck R, Woods J, and Bates A. MRI-Based Predictors of Work of Breathing in Neonates with Tracheomalacia. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Poster Discussion.
31. Gunatilaka C, Higano N, **Hysinger E**, Schuh A, Xiao Q, Fleck R, Woods J, and Bates A. Dramatically Increased Tracheal Resistive Work of Breathing in a Neonatal Subject with Tracheomegaly. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Poster Presentation.
32. Fletcher N, Higano N, Gunatilaka C, Critser P, **Hysinger E**, and Woods J. MRI-Determine Tidal Volumes, Minute Ventilation, and Cardiac Output in Neonatal

- Bronchopulmonary Dysplasia. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Poster Presentation.
33. McKenzie C, Gunatilaka C, Xiao Q, **Hysinger E**, and Bates A. Tracheomalacia in Neonates Reduces the Delivery of Nebulized Drugs to the Primary Bronchi. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Poster Presentation.
 34. Higano N, Mukthapuram S, **Hysinger E**, Fleck R, and Woods J. Obstructive Versus Restrictive Lung Disease in Neonatal Bronchopulmonary Dysplasia: Surrogate MRI Metrics Reveal Differences in Clinical Relevance. American Thoracic Society, May 13-18, 2022. San Francisco, CA. Oral Presentation

Teaching and Mentoring:

Teaching

Invited Presentations:

1. **Hysinger E.**, Friedman N., Shinohara R., Padula M., Zhang H., Panitch H., and Kawut S. Increased Morbidity in Neonates with Bronchopulmonary Dysplasia and Tracheobronchomalacia. Children's Hospital Neonatal Consortium. Sept. 28-30, 2016.
2. **Hysinger E.** Untangling Airway, Lung, Maturation and GI Disease in the Premature Infant. American Thoracic Society, May 19-24, 2017. San Diego, CA.
3. **Hysinger E**, Wood R, Torres-Silva, C, and Benschoter, D. Into the Airway: Pediatric Flexible Bronchoscopy. Cincinnati Children's Hospital Medical Center Grand Rounds. August 8, 2017. Cincinnati, OH.
4. **Hysinger E.** It's Not Asthma: Diagnosis and Management of Focal Wheezing. American Academy of Pediatrics, September 15-19, 2017. Chicago, IL.
5. **Hysinger E.** Dysphagia and Aspiration: The Lung as a Digestive Organ. Pediatric Dysphagia Series, October 5-6, 2018. Cincinnati, OH.
6. **Hysinger E.** The Pulmonologist and the Active Larynx. American Society of Pediatric Otolaryngology, May 3-5, 2019. San Antonio, TX
7. **Hysinger E.** Aerodigestive Year in Review. American Thoracic Society, May 15-20, 2019. Dallas, TX.
8. **Hysinger E.** Diagnosis and Management of Airway Complications of sBPD. American Thoracic Society, May 15-20, 2019. Dallas, TX.
9. **Hysinger E.** Advanced Diagnostic Bronchoscopy. Pediatric Flexible Bronchoscopy 2019 A Postgraduate Course. September 10-13, 2019. Cincinnati, OH
10. **Hysinger E.** Outpatient Management and Long-term Respiratory Outcomes in BPD. Guangzhou International Infant Chronic Lung Disease Forum. November 15-17, 2019. Guangzhou, China.
11. **Hysinger E.** Airway Complications and Utility of Flexible Bronchoscopy in BPD Management. Guangzhou International Infant Chronic Lung Disease Forum. November 15-17, 2019. Guangzhou, China.
12. **Hysinger E.** Airway Complications and Management in BPD. Cincinnati BPD Symposium 2020: Advances in Diagnosis and Management. January 13, 2020. Cincinnati, OH.
13. **Hysinger E.** Endoscopic Evaluation and Clinical Outcomes of Tracheomalacia in Infants. IX Curso Internacional de Enfermedades Respiratorias Pediatricas de la Universidad Catolica de Chile. November 19-21, 2020. Virtual Meeting.

October 22, 2022

14. **Hysinger E.** Cryotherapy in Pediatric Flexible Bronchoscopy. The Aerodigestive Society. S December 4-5, 2020. Virtual Meeting.
15. **Hysinger E.** Chronic Pulmonary Aspiration: The Lung as a Digestive Organ. The University of Massachusetts' Department of Pediatrics Grand Rounds. May 14, 2021. Virtual Meeting.
16. **Hysinger E.** and Hart C. Evaluation and Management of Aspiration in CHARGE Syndrome. International CHARGE Syndrome Conference. July 16-18, 2021. Virtual Meeting.
17. **Hysinger E.** Seeing Airway Dynamics: Development, Diagnosis, Outcomes, and Treatment of Tracheomalacia. Mt Sinai Pulmonary Grand Rounds. September 23, 2021.
18. **Hysinger E.** Non-surgical Management of Tracheomalacia. Aerodigestive Society Combined 2021 Meeting. November 4-5, 2021. Virtual Meeting
19. **Hysinger E.** Novel Techniques in Pulmonology, North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition. December 12-18, 2021. Virtual Meeting.
20. **Hysinger E.** Assment and Impact of Abnormal Lower Airway Dynamics. American Thoracic Society, May 13-18, 2022. San Francisco, CA.
21. **Hysinger E.** Endoscopic Intubation. American Thoracic Society, May 13-18, 2022. San Francisco, CA.
22. **Hysinger E.** The Pediatrician Perspective. Tackling Airflow Limitation from the First Years of Life to Early Adulthood: Are we still behind?. American Thoracic Society, May 13-18, 2022. San Francisco, CA.
23. **Hysinger E.** IP Procedures in Pediatric Patients. American Academy of Interventional Pulmonology, August 11-13, 2022. Nashville, TN.
24. **Kingma P and Hysinger E.** Premature Infants: Bronchopulmonary Dysplasia. Medically Complex Fall 2022 Annual Training Conference. August 26-27, 2022. Lexington, KY.
25. **Hysinger E.** Development of a Pediatric Lung Nodule Model. Quad Conference. October 11-14, 2022. Cincinnati, OH. **Hysinger E.** Development of a Pediatric Lung Nodule Model. Quad Conference. October 11-14, 2022. Cincinnati, OH.
26. **Hysinger E.** Implantable Bronchial Valves in Pediatrics. Quad Conference. October 11-14, 2022. Cincinnati, OH.
27. **Hysinger E.** Long-Term Pulmonary Impact in Airway Reconstruction Patients. Quad Conference. October 11-14, 2022. Cincinnati, OH.
28. **Hysinger E.** Non-Invasive Management of Tracheomalacia and Bronchomalacia. Quad Conference. October 11-14, 2022. Cincinnati, OH.
29. **Hysinger E.** Ventilator Management in Airway Surgery. Quad Conference. October 11-14, 2022. Cincinnati, OH.

Lectures:

1. Fellow lecture, two per year on "Ventilator Settings and Waveforms."
2. Fellow lecture, one per year on "Outpatient management and Long-term Outcomes of Bronchopulmonary Dysplasia"

Academic Course:

2017-present Cincinnati Children's Hospital Flexible Bronchoscopy Course

2020 Diagnostic, Advanced Diagnostic, and Interventional Bronchoscopy in Pediatrics

October 22, 2022

Mentoring

<u>Mentee</u>	<u>Mentoring Role</u>	<u>Current Rank</u>
Doug Von Allmen	Research Mentor	Assistant Professor
Sara Zak	Research Mentor	Assistant Professor
Gregory Burg	Clinical/Research Mentor	Assistant Professor
Ina St. Onge	Research Mentor	Assistant Professor
Abraham Kuranga	Clinical Mentor	Pulmonary Fellow
Lydia Bennett	Research Mentor	Medical Student
Max Yang	Research Mentor	Medical Student
Lauren Yoder	Research Mentor	Medical Student
Chaminndu Gunatilaka	Research Mentor	Post Doctorate
Nara Higano	Research Mentor	Instructor

Service and Citizenship:

Service

Professional Organizations:

2002-2006 Howard Hughes Medical Institute Community of Scholars
2010-2016 American Academy of Pediatrics
2014-2016 Center for Clinical Epidemiology and Biostatistics
2012-present American Thoracic Society
2013-present American College of Chest Physicians
2014-Present Children's Hospital Neonatal Consortium
2016-Present Aerodigestive Society

Committees:

2017-present American Thoracic Society Programming Committee

Manuscript Reviews:

2015- present Reviewer- *European Respiratory Journal*, 2-4 manuscripts per year
2017- present Reviewer- *Pediatric Pulmonology*, 2-4 manuscripts per year
2017- present Reviewer- *Pediatric Allergy, Immunology, and Pulmonology*, 1 manuscript per year
2017- present Reviewer- *American Journal of Respiratory and Critical Care Medicine*, 2-3 manuscripts per year
2019- present Reviewer- *Chest*, 1-3 manuscripts per year

Leadership

2017-present Co-Director Cincinnati Bronchopulmonary Dysplasia Center, Cincinnati Children's Hospital Medical Center