UNITED STATES DISTRICT COURT
SOUTHERN DISTRT OF IOWA

THE ARC OF IOWA; CHARMAINE ALEXANDER, individually and on behalf of C.B., a minor; JONATHAN CRAIG, individually and on behalf of E.C. and J.C., minors; MICHELLE CROFT, individually and on behalf of J.J.B., a minor; AMANDA DEVEREAUX, individually and on behalf of P.D., a minor; CARISSA FROYUM ROISE, individually and on behalf of H.J.F.R., a minor; LIDIJA GEEST, individually and on behalf of K.G., a minor; MELISSA HADDEN, individually and on behalf of V.M.H., a minor; HEATHER LYNN PRESTON, individually and on behalf of M.P. and S.P, minors; LISA HARDISTY SITHONNORATH, individually and on behalf of A.S., a minor; REBEKAH STEWART, individually and on behalf of E.M.S., a minor; and ERIN VERCANDE, individually and on behalf of S.V., a minor,

Plaintiffs,

v.

KIM REYNOLDS, in her official capacity as Governor of Iowa; ANN LEBO, in her official capacity as Director of the Iowa Department of Education; ANKENY COMMUNITY SCHOOL DISTRICT; COUNCIL BLUFFS COMMUNITY SCHOOL DISTRICT; DAVENPORT COMMUNITY SCHOOL DISTRICT; DECORAH COMMUNITY SCHOOL DISTRICT; DENVER COMMUNITY SCHOOL DISTRICT; DES MOINES PUBLIC SCHOOLS; IOWA CITY COMMUNITY SCHOOL DISTRICT; JOHNSTON COMMUNITY SCHOOL DISTRICT; LINN MAR COMMUNITY SCHOOL DISTRICT; and WATERLOO COMMUNITY SCHOOL DISTRICT,

Defendants.

Case No. 4:21-cv-264

PLAINTIFFS' DECLARATIONS IN SUPPORT OF PLAINTIFFS' RESPONSE TO DEFENDANTS' MOTION TO DISMISS

DECLARATION OF DR. LISA MENZIES

COMES NOW, Doctor Lisa Menzies and pursuant to 28 U.S.C. § 1746, declares under penalty of perjury that the following is true and correct:

1. My name is Dr. Lisa Menzies, and I am over 18 years old. I have personal knowledge of the facts as stated herein.
2. I am a pediatric physician at Unity Point Health Blank Children's Pediatric Clinic. My CV is attached to this declaration.
3. E.C., who is six years old, is one of my pediatric patients.
4. E.C. has the following diagnoses: Down's Syndrome, hypothyroidism, Lennox-Gastaut Syndrome, cardiac defects, chronic lung disease, high risk of aspiration, and high risk for pneumonia.
5. These conditions put E.C. at high risk for severe complications if she were to become infected with COVID-19, even though E.C. has been fully vaccinated and boosted.
6. Due to her intellectual challenges, E.C. is unable to fully tolerate mask wearing.
7. For these reasons, E.C. has not been attending school in-person for some time. She has been receiving home-bound schooling.
8. Home-bound schooling has its downsides. Where home-bound schooling has been the safest way to care for E.C. due to the lack of a mask mandate, she is not able to obtain the same level of special education services as she would get if she were attending school in person.
9. It is E.C.'s right to get the best special education she can get. Therefore, a return to in-person learning in the fall of 2022 is preferable to continued home-bound schooling. However, this must be done safely, considering E.C.'s significant medical conditions that

make her highly susceptible to severe complications if she were to become infected with COVID-19.

10. I recommend that E.C. return to in-person learning in the fall of 2022. I base this recommendation on several considerations. E.C.'s ability to maintain focus on a computer screen, which is required for online or remote learning, is hampered because of her disabilities. Homebound services do not have the breadth or depth of education that E.C. would get from in-person learning, do not provide E.C. with the social interaction she would have with her peers in an in-person learning setting, and lack the required therapies that E.C. would get in an in-person setting.

11. However, certain measures must be undertaken for E.C. to safely return to in-person learning in the fall. These measures would also medically benefit all children in special education who have medical challenges.

12. In terms of recommendations for a safe return to in-person learning, I recommend, among other precautions, that masking may be necessary, depending on conditions in the fall or if conditions are like they are now, by E.C.'s teachers and aides and by all others in the classroom who can wear masks.

13. There is good evidence that wearing masks can stop or lessen the spread of COVID-19 infection in the classroom.

14. Masks are still necessary even with the availability of current vaccines and treatments. Currently, the vaccination of E.C.'s school aged peers is low compared to the vaccination rate of the adult population, which affects the lowered immunity level of this age group. Therefore, even if E.C. is vaccinated, the low vaccination rate and the lowered immunity level of her peers means that masking is still necessary for others in close contact with

E.C. There would need to be an uptick in vaccination of E.C.'s school aged peers as well as a corresponding increase in immunity before masks would not be necessary for those in close contact with E.C.

I swear under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

Dated this 30 day of June 2022, at Des Moines, Iowa.

Dr. Lisa Menzies

Lisa J Menzies MD

4245 Foster Drive, Des Moines, IA 50312

(515)-208-7904

lisamenzies@msn.com

EDUCATION

- Rush Presbyterian-St Luke's Medical Center, Chicago, IL 1993-94, Chief Resident
- Rush Presbyterian-St Luke's Medical Center, Chicago, IL 1990-93, Resident, Pediatrics
- Rush Medical College, Chicago, IL 1986-1990, MD
- University of Illinois Urbana-Champaign, Urbana, IL 1982-86, BS- Biological Sciences

WORK EXPERIENCE

- Rush Presbyterian-St. Luke's Medical Center, Chicago, IL 1993-94, Junior Attending
- UnityPoint Health, Blank Children's Pediatric Clinic 1994-present

CERTIFICATION

- American Board of Pediatrics 1994- present

LICENSURE

- Iowa

HONORS AND AWARDS

- Outstanding Senior Resident, Rush Presbyterian-St Luke's Pediatric Residency 1993
- Teacher of the Year Award, Blank Children's Hospital 1996
- Charlotte Fisk Award, Blank Children's Hospital 2002
- Eyes of the Child Award, Blank Children's Hospital 2006
- Continuity Care Partner Award, Blank Children's Pediatric Clinic
- Heroes of the Heartland Award, American Red Cross, 2017
- Excellence in Patient Experience Award, National Medical Home Initiative, 2019

RESEARCH EXPERIENCE

- WeeseMayer, DE, Silvestri JM, Menzies LJ CCHS: Diagnosis, Management and Outcome in 32 Children J. Pediatrics 120 381-387

ACCREDITATIONS

- American Board of Pediatrics
- American Academy of Pediatrics
- Iowa Medical Society

VOLUNTEER EXPERIENCE

- Garfield Free Clinic, Chicago, IL 1993-94
  - Provided free medical care to impoverished community- twice monthly
- Issa Trust Foundation, Ocho Rios 2004-6 and Negril Jamaica 2007
  - Set up and staffed free pediatric clinic services in small communities near the towns. I was the medical team leader responsible for several physicians and multiple nurses for each week.
- Outreach Africa, Des Moines, IA/Singida, Tanzania 2008-2014
  - Medical team leader for multiple missions responsible for the planning of the missions varying from 14-23 days and responsible for 30-80 team members, procurement of medications and planning of protocols and clinic set up. Worked closely with the physicians, nurses and pharmacists pre-planning. Worked with local governmental and side by side with hospital personnel to ensure a respectful and beneficial relationship in the Singida Regional Hospital and medical clinics near Singida and Manyoni, Tanzania. Both when I was the team leader and when I was a team member I worked as a pediatrician seeing patients in hospital and clinic settings.
  - My favorite trip was when we went out to more remote villages and taught, hand sanitation, and "Breath Baby Breathe" to the local women who attended to the births in the villages, before we began the clinics.
  - During every trip we taught about prevention of infestation with helminths and gave prophylactic medications.

ADDITIONAL LANGUAGES

- Clinical Spanish

REFERENCES

- Dr Holley Bzdega
- Dr. Stephen Elliott
- Dr. Ed Bell

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF IOWA

THE ARC OF IOWA et al.,

Plaintiffs,

v.

KIM REYNOLDS et al.,

Defendants.

Case No. 4:21-cv-264

DECLARATION OF STEPHEN J. MOORADIAN, M.D.

I, Dr. Stephen J. Mooradian, declare as follows pursuant to 28 U.S.C. § 1746:

1. I am a pediatric cardiologist and owner at Pediatric Cardiology, P.C. in Des Moines, Iowa.
2. I am certified by the American Board of Pediatrics in pediatric cardiology. I practice general pediatric cardiology and I have a special training in fetal echocardiography, as well as transthoracic and transesophageal echocardiography. I have over 28 years of experience in the medical field. My CV is attached as Ex. A.
3. I have treated M.P. since July 2, 2015.
4. M.P. is diagnosed with Heterotaxy, an extremely rare condition where many organs in the body can be formed abnormally, in the wrong position, or are even missing.
5. M.P. has several medical complications resulting from Heterotaxy, including a complex cardiac anatomy. He has an unbalanced complete atrioventricular septal defect, D-transposition of the great arteries, and right atrial isomerism (bilateral right sidedness). He also has a lung abnormality resulting in two right lungs.
6. Under my care M.P. had Fontan surgery to address his cardiac anomaly. In the normal heart each ventricle does a separate job. The right ventricle pumps blood to the lungs. The left ventricle pumps blood to the body. In a single ventricle heart, there is only one ventricle

large enough to do the normal job of pumping blood. Fontan surgery is used to change the circulation and allows the single ventricle to pump blood without overworking it. It is a palliative surgery for patients with univentricular heart of many different varieties. When a heart only has one good ventricle, the Fontan surgery is the typical surgical approach. The Fontan surgery is not a cure; rather, it is a way to route the blood flow to allow the circulation to be as effective as possible.

7. As a Fontan patient, M.P.'s heart and lungs are under chronic stress. His liver is also under stress. Since his blood flow can be sluggish, he is at increased risk of blood clots.

8. Based on my experience and consistent with CDC guidance, because of these heart and lung conditions M.P is at high risk for severe complications from COVID-19, even though he is fully vaccinated.

9. For all my Fontan patients, I recommend vaccination along with other mitigation strategies such as masking.

10. Evidence is clear that masks are most effective when worn by all surrounding the patient. If those around a patient are masked, they can decrease risk of the patient contracting the virus.

11. I would recommend all those who are around M.P. at school, including other students and staff, wear a mask to protect his health.

12. Many people who are infected with COVID-19 will recover without need for hospitalization. However, patients with chronic heart conditions such as M.P. are at more risk of severe complications, both in the short term and long term.

13. This is confirmed by M.P.'s own experience. M.P. contracted COVID-19 last fall and as a result, he was hospitalized for approximately five days. His oxygenation was extremely low, and he required treatment in a hospital to recover.

14. He first went to the ER where he tested positive and was initially sent home. His parents were told to return if his oxygenation dropped. His oxygenation dropped, and he was hospitalized. In the hospital he received Remdesivir, along with steroids and other fluids through the IV.

15. M.P.'s standard oxygenation level is at best 88-91%, most people need to be hospitalized at 90%. His oxygenation dropped into the 70% range, and he was hospitalized.

16. The medication and constant medical supervision at hospital were critical to making sure he recovered and did not have to be put on a ventilator.

17. Currently we do not have a complete understanding of the long-term consequences of COVID-19, but there is a group of patients who develop "Long Covid" which seems to include lung dysfunction and hypercoagulable state, both of which would be especially dangerous for a Fontan patient such as M.P.

18. It is my medical opinion that M.P. still requires masking by those around him in school in order to best protect him from further COVID-19 infections.

19. Despite having had COVID-19 M.P. remains at high risk for complications from COVID-19 because having COVID-19 once does not prevent one from the possibility of reinfection from a different variant. Reinfections are not unusual with COVID-19. In fact, a recent study found the risk of reinfection increased substantially with the emergence of omicron in November. [1]

[1] Juliet R. C. Pulliam, Cari van Schalkwyk, Nevashan Govender, Anne von Gottberg, Cheryl Cohen, Michelle J. Groome, Jonathan Dushoff, Koleka Mlisana, *Harry Moultrie, Increased risk of SARS-CoV-2 reinfection associated*

20. Additionally, though he is vaccinated he continues to be at high risk for severe complications because vaccinations do not provide complete immunity and with each new variant there are additional risks.

21. I swear under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

Dates this 30 day of June 2022, at Des Moines, Iowa.

SJMooradian MD.

Dr. Stephen J. Mooradian

with emergence of Omicron in South Africa 376 Science 6593 (Mar. 15, 2022), *available at* https://www.science.org/doi/abs/10.1126/science.abn4947.

June 2022

Curriculum Vitae

Stephen J. Mooradian, MD

Personal Data:

Current Position:	Pediatric Cardiologist Pediatric Cardiology, P.C.
Office address:	330 Laurel Street, Suite 2200 Des Moines, Iowa 50314 Tel. (515) 288-1097 Fax. (515) 288-2847 E-mail: stephenm@pedscard.com
Date of Birth:	24 November 1967
Citizenship:	United States of America

Medical Licensure:

1997-2006	State of Michigan, No. 4301063710
2007-Present	State of Iowa, No. 33317

Certification:

1997-2011	American Board of Pediatrics, General Pediatrics
2000-Present	American Board of Pediatrics, Pediatric Cardiology

Society Memberships:

2000-Present	Polk County Medical Society
2000-Present	Iowa Medical Society
2000-Present	American Society of Echocardiography
2002-Present	Fellow, American College of Cardiology

Education:

1985-1989	Harvard College, AB in Medical Anthropology, *cum laude*
1990-1994	Columbia College of Physicians and Surgeons, MD

Post-Graduate Training:

1994-1997	Pediatric Residency: C.S. Mott Children's Hospital, University of Michigan
1997-2000	Pediatric Cardiology Fellowship: University of Michigan Congenital Heart Center

Leadership Activities:

2015-2016	Vice-chair, Department of Pediatrics, Mercy Medical Center
2016-2017	Chair, Department of Pediatrics, Mercy Medical Center

Honors and Awards:

1987-1989	Harvard College Scholarship for Academic Excellence
1988-1989	White Scholarship for Academic Achievement at Harvard University
1991	Rudin Scholarship; Columbia Center for the Study of Medicine and Society
1994	Marie Nercessian award for dedication to the care of sick people
1994	Rebecca A. Schwartz Prize for outstanding work in Pediatric Cardiology
2008	Teaching / Academic Excellence Award, Blank Children's Hospital
2017	Pediatric Recognition Award, Blank Children's Hospital

Publications:

2000	Mooradian S, Goldberg C, Crowley D, Ludomirsky, A. Evaluation of a Noninvasive Index of Global Ventricular Function to Predict Rejection Following Pediatric Cardiac Transplantation. *The American Journal of Cardiology*; 86: 358-360.

Research Presentations:

	A Non-Invasive Index for Global Ventricular Function: A Predictor for Rejection after Pediatric Cardiac Transplantation?
1998	Oral Presentation, Midwest Pediatric Cardiology Society annual meeting
1998	Poster Presentation, Michigan Chapter of ACC annual meeting
1999	Oral Presentation, American Society of Echocardiography annual meeting

Teaching Activities:

2000-Present	Numerous lectures on pediatric cardiology topics - Des Moines University, 4-8 lectures per year - Mercy Medical Center - Blank Children's Hospital

DECLARATION OF CARISSA FROYUM ROISE

COMES NOW, Carissa Froyum Roise and pursuant to 28 U.S.C. § 1746, declares under penalty of perjury that the following is true and correct:

1. My name is Carissa Froyum Roise, and I am over 18 years old and have personal knowledge of the facts as stated herein.
2. The attached letter is a true and correct copy of my son H.J.F.R.'s medical record from his treating physician, Dr. Tim Starner.

I swear under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

Dates this 1st day of July 2022, at Denver, Iowa.

Carissa Froyum Roise, Plaintiff

Letter Details (Hans)

UWHealth

AMERICAN FAMILY CHILDRENS HOSPITAL PULMONARY
1675 HIGHLAND AVE
MADISON WI 53792
608-263-6420

June 20, 2022

[redacted]
Denver IA 50622

To Whom It May Concern:

[redacted] is an established patient of mine at American Family Childrens Hospital Pulmonary. [redacted] has the following diagnoses: Congenital Central Hypoventilation Syndrome (CCHS), autonomic dysfunction, chronic respiratory failure with hypoxia and hypercapnia, and dependence on bilevel positive airway pressure ventilation due to central sleep apnea.

Because [redacted] has CCHS, he is at an elevated risk of needing additional ventilatory support if he should contract COVID-19. COVID-19 is different from influenza and RSV as it has a higher risk for lingering/sustained effects.

As such, he benefits from wearing a face mask to reduce the risk of contracting COVID-19. He should follow the CDC guidelines on masking. He is free to always wear a mask if he prefers, as that does not constitute any harm for him.

Per current CDC guidelines, when his county is in the medium transmission category, he should wear a mask when indoors with other non-household contacts. When his county is in the high transmission category, we recommend that all people should wear a mask when indoors with other people to reduce [redacted] exposure to COVID-19 spread by others.

If you have any questions, please contact our office at 608-263-6420.

Sincerely,

Tim Starner

Timothy D Starner, MD
Electronically signed by Timothy D Starner, MD on 6/20/2022 at 12:53 PM
Dept of Pediatrics Pulmonary and Sleep Medicine Division
American Family Children's Hospital; University of Wisconsin - Madison
Phone: 608-263-6420 Option 2

FAX: 608-890-6395
NPI: 1972592004

Patient Name[redacted] (DOB: [redacted]) MRN: [redacted] Page 1 of 1

This letter was initially viewed by [redacted] at 6/21/2022 5:01 AM.

UW Health Privacy Practices & Policies

Declaration of Dr. Joel Waddell

I, Dr. Joel Waddell, declare as follows under penalty of perjury pursuant to 28 U.S.C. § 1746:

Background

1. I am currently a practicing pediatric infectious diseases physician at the Blank Children's Hospital in Des Moines, Iowa. At the Blank Children's Hospital, I currently serve as the Pediatric Residency Associate Program Director and as the Pediatric Residency Curriculum Committee Chair. All statements within this declaration represent my thoughts, and these statements do not necessarily represent the positions of Blank Children's Hospital, Iowa Methodist Medical Center, or UnityPoint Health.
2. I received my Bachelor of Science from East Tennessee State University in 2009 and my D.O. from Des Moines University in 2013. I completed my residency in General Pediatrics at Kansas University in 2016 and fellowship in Pediatric Infectious Diseases at the University of Missouri–Kansas City in 2019. I received three years of additional training in Pediatric Clinical Pharmacology at the University of Missouri–Kansas City. I am currently a member of the Society for Pediatric Research, the Pediatric Infectious Diseases Society, the Infectious Diseases Society of America, the Society for Healthcare Epidemiology of America, and the American Academy of Pediatrics.
3. Since completing my residency and fellowship training, I have practiced at the Blank Children's Hospital in Des Moines providing both inpatient and outpatient consultations in pediatric infectious diseases. In addition to serving as the Pediatric Residency Associate Program Director and as the Pediatric Residency Curriculum Committee Chair, I am also a member of the Pediatric Residency Scholarship Oversight Committee and the Pediatric Death Review Committee. Before beginning at the Blank Children's Hospital, I also served on various committees during my time as a resident and as a fellow. I served for two years (2017-2019) as a member of the Pediatric Infectious Diseases Society Research Affairs Committee, for two years (2017-2019) as a member of the Musculoskeletal Infection Hospital Care Committee at Children's Mercy Hospital, for two years (2014-2016) as a member of the Pediatric Hospital Ethics Committee at the Kansas University Medical Center, for three years (2013-2016) as a member of the Pediatric Medical Education Committee at the Kansas University Pediatric Residency program, and for two years (2009-

2011) as the Research Committee Chair of the Student Osteopathic Medical Association at Des Moines University.

4. My academic and medical policy work includes forty scientific presentations and invited lectures, two co-authored hospital policies and handbooks, and two co-authored publications on subjects relevant to pediatric infectious diseases. I have also appeared in nine television, newspaper, and radio interviews where I provided insight into the impact of COVID-19 on children. I spoke at the state of Iowa's annual school nursing conference discussing COVID-19 clinical presentations, treatment options, and various modalities to prevent COVID-19 infections in schools. I have provided five didactic lectures regarding COVID-19 in children at three different medical centers in Iowa. Additionally, I will be the keynote speaker at the 2021 Iowa Physiology Society annual meeting in December 2021.
5. I received the Most Outstanding Faculty Teaching Award at the Blank Children's Hospital Pediatrics Residency Program in 2021, the Teaching & Academic Excellence Award at the Blank Children's Hospital Pediatric Education Department in 2019, the Most Outstanding Fellow Teaching Award at Children's Mercy Hospital, the Most Outstanding Pediatric Resident Award at the Kansas University Pediatric Residency program in 2016, and the Resident Researcher of the Year Award at the Kansas University Pediatric Residency program in 2015.
6. My CV is attached as Exhibit A.
7. I am familiar with the state law prohibiting mask mandates in schools. In my expert opinion, this law will hurt the children of this state and their families by denying schools the ability to fashion policies for their districts that attend to the health needs of their students. If students face the prospect of going to school in areas of substantial or high risk of COVID-19 transmission, with no requirements of masks, they are forced either to attend school at risk to their health and that of their families or to stay out of school, also a risk to their physical psychological, emotional, and developmental well-being. I am particularly concerned for those students with disabilities that increase the risk of severe illness should they contract COVID-19. Given the dominance of the Delta variant in Iowa and across the United States, it is even more likely that entire classrooms, including those with students

with disabilities, could be infected with COVID-19 in the absence of vaccines or mask mandates.

8. I am not being compensated for my time reviewing materials and preparing this report.

I. Increased COVID-19 Transmission and Prevalence of the Delta Variant in Iowa

9. The beginning of this school year coincides with a dramatic increase in COVID-19 transmission. As of August 31, all but three of Iowa's ninety-nine counties were experiencing "high" levels of community COVID-19 transmission, with "high" being the most severe CDC transmission designation.[1] Between June 27 and August 31, the average daily cases per 100,000 residents in Iowa has risen sixteen-fold from two per 100,000 to thirty-three per 100,000.[2] Furthermore, the test positivity rate, an indicator of increasing COVID-19 community spread,[3] has risen seven-fold from about 2% to over 14% during this same time period.[4] Iowa is also experiencing a faster rate of increase in new COVID-19 cases than the United States as a whole; for the fourteen-day period ending on August 31, Iowa recorded a 46% increase in daily average COVID-19 cases per 100,000 residents, compared to a 18% increase in this same rate for the United States as a whole.[5]

10. Iowa's hospitals show the strain of the COVID-19 pandemic. As of August 31, the State of Iowa reported 498 COVID-19 hospitalizations, a number not seen since the 2020-2021 winter COVID-19 surge.[6] August also saw an all-time low availability of ICU beds available in Iowa. On September 2, the state of Iowa Regional Medical Coordination Center Dashboard reported only 297 available ICU beds in the state of Iowa, fewer available beds than at any point during the 2020-2021 winter COVID-19 surge.[7]

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[1] *COVID-19 Integrated County View*, Ctrs. for Disease Control & Prevention (Aug. 31, 2021 update), https://covid.cdc.gov/covid-data-tracker/#county-view (last visited Sept. 2, 2021).
[2] Mayo Found. for Medical Educ. & Res., *Iowa coronavirus map: What do the trends mean for you?*, Mayo Clinic, https://www.mayoclinic.org/coronavirus-covid-19/map/iowa (last visited Sept. 2, 2021).
[3] *See, e.g.*, *Positivity Rate Explained*, Barry-Eaton Dist. Health Dep't. (Oct. 2020), https://www.barryeatonhealth.org/sites/default/files/Positivity%20Rate%20Explained.pdf (last visited Sept. 2, 2021).
[4] Mayo Found. for Medical Educ. & Res., *supra* note 2.
[5] *Coronavirus in the U.S.: Latest Map and Case Count*, N.Y. Times (Sept. 2, 2021 update), https://www.nytimes.com/interactive/2021/us/covid-cases.html (last visited Sept. 2, 2021).
[6] *Hospitalization Analysis*, Iowa Dep't of Pub. Health, https://coronavirus.iowa.gov/pages/hospitalization-analysis (last visited Sept. 2, 2021).
[7] *Hospital Data Summary, Regional Medical Coordination Center Dashboard*, Iowa Dep't of Pub. Health, https://coronavirus.iowa.gov/pages/rmcc-data (last visited Sept. 2, 2021).

11. The COVID-19 Delta variant is estimated to account for 99.7% of COVID-19 infections in HHS Region 7, which includes Iowa, as of August 31.[8] This is relevant to the overall COVID-19 transmission landscape given that the Center for Disease Control and Prevention (CDC) estimates that the Delta variant is at least twice as transmissible as previous variants and that it could likely lead to more severe illness in adults.[9]

II. The Impact of the Delta Variant for Children

12. Pediatric COVID-19 cases comprise an increasing share of overall COVID-19 cases in the United States. While Iowa stopped updating its pediatric COVID-19 testing data on July 15,[10] the most recent available data from Iowa suggest a similar trend statewide as well. On August 16, 2021, the number of children hospitalized due to COVID-19 in the United States reached an all-time high exceeding 1,900.[11] Pediatric hospitalizations now account for 2.3% of all COVID-19-related hospitalizations, compared to less than 1% in May of 2020.[12] Similarly, pediatric COVID-19 cases represented fewer than 5% of all cases in May of 2020, but now account for over 14% of total cases.[13]

13. In Iowa, the most recent data indicate similar trends. According to the last full week of pediatric data reporting in Iowa, ending on July 8, there were nearly 50,000 cumulative childhood COVID-19 cases reported in the state.[14] Even with the gap in data reporting, Iowa still exceeds the national average in terms of cumulative COVID-19 cases per 100,000 children.[15] Since Iowa last reported pediatric COVID-19 data, the weekly number of new pediatric COVID-19 cases has increased ten-fold from fewer than 20,000 to over

[8] *COVID Data Tracker: Variant Proportions*, Ctrs. for Disease Control & Prevention (Aug. 28, 2021 update), https://covid.cdc.gov/covid-data-tracker/#variant-proportions (last visited Sept. 2, 2021).
[9] *Delta Variant: What We Know About the Science*, Ctrs. for Disease Control & Prevention (May 7, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/variants/delta-variant.html (last visited Sept. 2, 2021).
[10] *Children and COVID-19: State Data Report: Version: 8/26/21*, Am. Acad. Pediatrics (Aug. 26, 2021 update), https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/ (last visited Sept. 2, 2021).
[11] Carolyn Crist, *U.S. Reports Record COVID Hospitalizations of Children*, WebMD (Aug. 16, 2021), https://www.webmd.com/lung/news/20210816/u-s-reports-record-covid-hospitalizations-of-children (last visited Sept. 2, 2021).
[12] *Children and COVID-19: State Data Report*, *supra* note 11, at 16, 20.
[13] *Id*. at 12, 15.
[14] *Id*. at 25.
[15] *Id.*

203,962 as of August 26.[16] It is clear from the available data that COVID-19 currently presents as acute threat to children in Iowa.

III. The Availability of Vaccines for Children and Overall Vaccination Rates in Iowa

14. Children in Iowa are vulnerable to the Delta variant given the unavailability of vaccines from children under the age of twelve and the low vaccination rate for children twelve to nineteen years old. None of the three available COVID-19 vaccines have been approved, for emergency use or otherwise, for children under the age of twelve.[17] As of September 2, only about 30% of children aged twelve to fifteen were fully vaccinated, only about 39% of children aged sixteen and seventeen were fully vaccinated, and only about 40% of adolescents aged eighteen and nineteen were fully vaccinated in Iowa.[18] Nationally, 64% of adults above the age of eighteen were fully vaccinated as of September 2, underscoring the particularly low vaccine coverage for Iowa minors.[19]
15. In addition, as with adults, some children with cancer, immunodeficiencies, and those receiving immunosuppressive medications cannot mount an appropriate immune response to COVID-19 vaccines. Therefore, they are less protected from COVID-19 vaccination.
16. According to the CDC, unvaccinated people are much more likely to contract, transmit, and experience severe symptomatic illness from the Delta variant than their vaccinated counterparts.[20] In light of the data on pediatric vaccination rates and the unavailability of vaccines to the youngest school-aged children, children account for a disproportionate share of Americans to whom the Delta variant poses the greatest risk.

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[16] *Id*. at 9.
[17] *Covid-19 Vaccines for Children and Teens,* Ctrs. for Disease Control & Prevention (Aug. 17, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/adolescents.html (last visited Sept. 2, 2021).
[18] *Fully Vaccinated Demographics*, Iowa Dep't of Pub. Health, https://coronavirus.iowa.gov/pages/vaccineinformation (last visited Sept. 2, 2021).
[19] *See How Vaccinations Are Going in Your County and State*, N.Y. Times (Sept. 1, 2021 update), https://www.nytimes.com/interactive/2020/us/covid-19-vaccine-doses.html (last visited Sept. 2, 2021).
[19] *Hospitalization Analysis*, Iowa Dep't of Pub. Health, https://coronavirus.iowa.gov/pages/hospitalization-analysis (last visited Sept. 2, 2021).
[20] *Delta Variant: What We Know About the Science*, Ctrs. for Disease Control & Prevention (Aug. 27, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/variants/delta-variant.html (last visited Sept. 2, 2021).

IV. Conditions That Can Put Children at Greater Risk of Severe Illness from COVID-19

17. As noted above, children are particularly vulnerable to COVID-19 as a result of vaccination rates within this population. Of greatest concern are those children who are not or cannot be vaccinated who have underlying medical conditions that increase their risk for severe illness as a result of COVID-19 infection. According to the CDC, "children with medical complexity, with genetic, neurologic, metabolic conditions, or with congenital heart disease," as well as "children with obesity, diabetes, asthma or chronic lung disease, sickle cell disease, or immunosuppression" may fall into this category.[21]

18. Most if not all of the children with these conditions are disabled within the meaning of the Americans with Disabilities Act (the ADA).[22] The ADA defines disability as "a physical or mental impairment that substantially limits one or more major life activities of such individual."[23] Major life activities for purposes of the Act "include but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working;" a major life activity "also includes the operation of a major bodily function, including but not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions."[24] Conditions such as asthma, chronic lung disease, diabetes, sickle cell disease, and congenital heart disease by definition substantially limit a major bodily function.

19. These are not the only children at risk of grave harm. Individuals with intellectual disabilities are also at increased risk of contracting COVID-19 and of dying from COVID-19 infection. A recent study published in the New England Journal of Medicine—working with a data set of 64,414,495 patients across more than 500 U.S. healthcare systems, of which "127,003 were patients with intellectual disabilities and 64,287,492 were patients without intellectual disabilities"—concluded that "intellectual disability was the strongest

[21] *People with Certain Medical Conditions*, Ctrs. for Disease Control & Prevention (Aug. 20, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html (last visited Sept. 2, 2021).
[22] 42 U.S.C. § 12101 *et seq*.
[23] 42 U.S.C. § 12102(1).
[24] 42 U.S.C. §§ 12102(2)(A)-(B).

independent risk factor for presenting with a Covid-19 diagnosis and the strongest independent risk factor other than age for Covid-19 mortality."[25] The study found individuals with intellectual disabilities were more likely to contract COVID; if diagnosed with COVID, more likely to be admitted to the hospital; and more likely to die following admission.[26] The risks reflect the risks associated with intellectual disability itself, as well as comorbidities that in the study were overrepresented among those with intellectual disabilities. Notably, the odds of mortality among those with intellectual disabilities in the study were "significantly higher than other conditions such as congestive heart failure, kidney disease, and lung disease."[27]

20. During the 2020-2021 school year, the families of many of my patients have expressed significant concerns about their children being exposed to COVID-19 in school. However, they are even more concerned about the 2021-2022 school year due to the Delta variant and lack of mask mandates. The parents of a young child (under the age of twelve) told me they lie awake every night trying to balance the risks of sending their boy to school. The child has a genetic immunodeficiency. Therefore, he is at higher risks of various infections and their complications, including more severe outcomes from COVID-19. These parents are anguished because they know how healthy and important in-person school is for their boy, but they fully understand the likelihood of their child contracting COVID-19 from their unvaccinated peers without masks. Another family of a young girl with leukemia has expressed similar concerns. They no longer believe that our schools are a safe place for their child. I have been caring for a teenage young lady who is on various immunosuppressant medications due to a rheumatologic condition. While she has been vaccinated against COVID-19, she is less likely to be protected from COVID-19 infection. I have sat with the mother of this patient as she cries not seeing a safe avenue for in-person school for her daughter. I have also had to sit with many distraught families of previously healthy children who require hospitalization with post-infectious complications of COVID-19 called Multisystem Inflammatory Syndrome in Children (MIS-C). With MIS-

[25] Jonathan Gleason et. al., *Commentary: The Devastating Impact of Covid-19 on Individuals with Intellectual Disabilities in the United States*, New Eng. J. Med. (Mar. 5, 2021), https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0051 (last visited Sept. 2, 2021).
[26] *Id.*
[27] *Id.*

C, children often require continuous infusions of medications that help their heart beat strong enough to maintain life. Several of these parents have looked me in the eyes while crying and asked, "could we have done something to prevent this from happening?" If the appropriate risk mitigation steps are not taken in the schools of Iowa, we will almost surely see more cases of MIS-C and other complications of COVID-19 in children this school year compared to last year.

21. Finally, when we think about the risk to children in the state, we can't ignore the risk of children developing what has come to be known as long COVID, where symptoms remain months after an initial COVID diagnosis. While study is essential to know the scope of long COVID in children, with current estimates varying significantly, there are increasing concerns about the long-term impact of COVID even among the asymptomatic.[28]

V. CDC and State Department of Health Recommendations on Masking in Schools and the Efficacy of Masking for Reducing COVID-19 Transmission

22. The CDC recommends "universal indoor masking for all students, staff, teachers, and visitors to K-12 schools, regardless of vaccination status."[29] Underlying the CDC guidance are concerns about "the highly transmissible nature of this variant," the ineligibility of children under twelve for the vaccine, and low levels of vaccination among youth ages twelve to seventeen, all factors present in our state at this time.[30]

23. Leading medical organizations, including the American Academy of Pediatrics and the American Medical Association, similarly recommend universal masking as part of school openings.[31]

24. In addition to national organizations, the local health departments in each of Iowa's three most populous counties (Polk, Linn, and Scott counties) all recommend universal mask-wearing in indoor settings. The Scott County Health Department simply recommends "[m]asking of all in indoor spaces," and the Polk County Health Department and the Linn

[28] *See, e.g.*, Dyani Lewis, *Long COVID and Kids: Scientists Race to Find Answers*, 595 Nature 482 (2021).
[29] *Guidance for Covid-19 Prevention in K-12 Schools*, Ctrs. for Disease Control & Prevention (Aug. 5, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-guidance.html (last visited Sept. 2, 2021).
[30] *Id.*
[31] *See, e.g.*, *American Academy of Pediatrics Updates Recommendations for Opening Schools in Fall 2021*, Am. Acad. Pediatrics (July 19, 2021), https://www.aap.org/en/news-room/news-releases/aap/2021/american-academy-of-pediatrics-updates-recommendations-for-opening-schools-in-fall-2021/.

County Health Department both explicitly state that schools fall under their universal mask-wearing recommendations.[32] The Iowa Medical Society and the Iowa Chapter of the American Academy of Pediatrics both recommend universal indoor masking by all students (age two and older), staff, teachers, and visitors to K-12 schools, regardless of vaccination status.[33]

25. Recent studies have confirmed that wearing masks is one of the most powerful tools to thwart the transmission of COVID-19 in indoor settings, such as schools. Researchers at Duke University conducted a study on COVID-19 transmission within schools following "Plan A" which "provided full, in-person instruction, masking, and minimal physical distancing."[34] Analysis conducted by Duke University researchers using data from North Carolina K-12 schools —data that included more than 1,280,000 students and 160,000 staff—found that "there is very limited within-school transmission of COVID-19 in schools participating in Plan A," leading the researchers to conclude that "wearing masks is an effective strategy to prevent in-school COVID-19 transmission."[35]

26. This study confirms what the CDC and other studies have reported. The CDC has stated, "Experimental and epidemiological data support community masking to reduce the spread" of the Delta variant.[36] A recent literature review concluded that "nonmedical masks have been effective in reducing transmission of respiratory viruses; and places and time periods

[32] *Quad Cities COVID-19 Coalition: August 19 Press Release*, Scott Cnty. (Aug. 19, 2021), https://www.scottcountyiowa.gov/sites/default/files/attachments/posts/20210819_COVID-19_Update_on_Public_Health_Response.pdf (Scott County); *COVID-19 cases and hospitalizations are surging: It is time for our community to step up and do the right thing*, Polk Cnty. (Aug. 24, 2021), https://www.polkcountyiowa.gov/health-department/news-and-press-releases/covid-19-cases-and-hospitalizations-are-surging-it-is-time-for-our-community-to-step-up-and-do-the-right-thing/ (Polk County); Grace King, *Masks should be mandated to be worn in schools, Linn County board of health says*, Gazette (Aug. 30, 2021), https://www.thegazette.com/k/masks-should-be-mandated-to-be-worn-in-schools-linn-county-board-of-health-says/ (last visited Sept. 2, 2021).

[33] Sydney Maras, *IMS & IA AAP: Back to School Face Mask Usage Statement*, Iowa Medical Society (Aug. 19, 2021), https://www.iowamedical.org/news/10941537 (last visited Sept. 2, 2021).

[34] *The ABCs of North Carolina's Plan A*, ABC Science Collaborative (July 1, 2021), https://abcsciencecollaborative.org/the-abcs-of-north-carolinas-plan-a/ (last visited Sept. 2, 2021).

[35] Letter from Danny Benjamin & Kanecia Zimmerman to Joint Legislative Education Oversight Committee et al. (June 30, 2021), https://abcsciencecollaborative.org/wp-content/uploads/2021/06/ABCs-Final-Report-June-2021.06-esig-DB-KZ-6-29-21.pdf (last visited Sept. 2, 2021).

[36] *Science Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2*, Ctrs. for Disease Control & Prevention (May 7, 2021 update), https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html#anchor_1619456988446 (last visited Sept. 2, 2021).

where mask usage is required or widespread have shown substantially lower community transmission."[37]

27. Masking is also critical for the health of those who, for reasons of disability, cannot mask. Those include people who struggle to take a mask off and on, whether because of motor skills or cognitive issues; people with sensory processing disorders; and people with facial deformities incompatible with a mask, among others.[38]

28. As noted above, families that I worked with and all of the children not vaccinated are at great risk for a COVID-19 infection. Given the rise in pediatric infections (and adult infections) due to the Delta variant of COVID-19, in my expert opinion, the only safe course at this time is universal masking for children for safe attendance at school and school-related functions until our public health officials declare a safe level of population-wide vaccination. As a pediatric infectious diseases physician, I am concerned about all children but particularly worried about those children with complex medical conditions and/or disabilities since the latter group could more likely sustain severe illness or even death. The risk of death is low overall, but certainly elevated for the vulnerable group. Any severe illness or death is unacceptable for a preventable disease.

VI. The Necessity of Allowing Iowa Schools to Set Their Own Mask Policies

29. Iowa's Mask Mandate Prohibition denies school districts the ability to require masks to protect their students and staff. In communities where COVID-19 is prevalent, parents with children with conditions that can make them vulnerable to severe illness in particular will face a terrible dilemma of whether to risk their children's health and even life, or to keep the children out of school. That is not a decision they should be forced to make, when we have the option of masks to protect the safety of those in the school.

30. My concern is greatest for these children, but it does not stop there. No child should risk serious illness if we can prevent it.

[37] Howard et. al., *An evidence review of face masks against COVID-19*, 118 PNAS 1, 1-12 (2021); Cheng, *et al.*, *Face masks effectively limit the probability of SARS-CoV-2 transmission*, 372 Science 1439, 1439-1443 (2021).
[38] Doron Dorfman & Mical Raz, *Mask Exemptions During the COVID-19 Pandemic—A New Frontier for Clinicians*, JAMA Health Forum (July 10, 2020), https://jamanetwork.com/journals/jama-health-forum/fullarticle/2768376?resultClick=1.

31. Without a mask requirement, children who chose to wear a mask will inevitably be subject to a multitude of negative psychological effects, such as bullying and feeling ostracized from their peers. Therefore, in the absence of mask mandates, we are not really giving Iowa's children a fair choice. We are telling them they have to choose between their physical health and emotional/psychological health.
32. And it's not just the children. Children who catch the virus at school will bring it home, risking their families' health and security. Without mask requirements, it is quite possible that schools in Iowa could become hotspots for COVID-19 outbreaks, which then increase the community spread of disease throughout our state. This is particularly concerning given the state's low vaccination rates and high rates of comorbidities in the adult population.
33. In my opinion, the state cannot in good conscience let this policy stand given the threat it poses to children and their families.

I swear under the penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

Dated this 2nd day of September 2021, at Clive, Iowa. 6:31 PM

Joel Waddell D.O.

Curriculum Vitae
Joel Waddell, D. O.

EXHIBIT A

Date of Preparation: 08/28/2021

Citizenship Status

Country of Citizenship	Type of Visa	Work Authorization End Date
USA		

EDUCATION

- **Baccalaureate Degree**

Year	Degree	Institution	City, State
2004-2009	Bachelor of Science	East Tennessee State University	Johnson City, TN

- **Graduate Degrees (Masters/Doctorate)**

Year	Degree	Institution	City, State
2009-2013	D.O.	Des Moines University	Des Moines, IA

- **Residency/Fellowship Training**

Year	Specialty	Institution	City, State
2013-2016	General Pediatrics	Kansas University	Kansas City, KS
2016-2019	Pediatric Clinical Pharmacy	University of Missouri-Kansas	Kansas City, MO
2016-2019	Pediatric Infectious Diseases	City/Children's Mercy Hospital	

Practice/Employment History (starting with most recent)

Years	Practice Organization/Employer	City, State
2019-Present	Blank Children's Hospital	Des Moines, IA

Certification and Licensure

- **Certifications:**

Board	Initial Year	Most Recent Cert. Yr.	Certificate No.
American Board of Pediatrics	2016	2016	118135
American Board of Pediatrics	2019	2019	1747

- **Medical Licensure (current)**

State	Initial Date	License No.
Iowa	2019	DO-05386

Leadership Positions

Years	Position
2021 – Present	*Pediatric Residency Associate Program Director* Blank Children's Hospital, Des Moines, IA
2021 – Present	*Pediatric Residency Curriculum Committee Chair* Blank Children's Hospital, Des Moines, IA
2020 – Present	*Pediatric Residency Scholarship Oversight Committee Member* Blank Children's Hospital, Des Moines, IA
2020 – Present	*Pediatric Death Review Committee Member* Blank Children's Hospital, Des Moines, IA
2017 – 2019	*Musculoskeletal Infection Hospital Care Committee Member* Children's Mercy Hospital, Kansas City, MO
2017 – 2019	*Pediatric Infectious Diseases Society Research Affairs Committee Member*
2016 – 2019	*Fellow Representative of Graduate Medical Education Committee* Children's Mercy Hospital, Kansas City, MO
2015 – 2016	*Resident Representative of Clinical Learning Environment Review Program* Kansas University Pediatric Residency, Kansas City, KS
2014 – 2016	*Resident Representative of Pediatric Hospital Ethics Committee* Kansas University Medical Center, Kansas City, KS
2014 – 2016	*Clinical Skills Preceptor for Medical Students* Kansas University School of Medicine, Kansas City, KS
2013 – 2016	*Resident Representative of Pediatric Medical Education Committee* Kansas University Pediatric Residency, Kansas City, KS
2009 – 2011	*Research Committee Chair of Student Osteopathic Medical Association* Des Moines University, Des Moines, IA

Professional Affiliations and Memberships (currently only)

Organization

2017 – Present	Society for Pediatric Research
2016 – Present	Pediatric Infectious Diseases Society
2016 – Present	Infectious Diseases Society of America
2016 – Present	The Society for Healthcare Epidemiology of America
2013 – Present	American Academy of Pediatrics

Honors and Awards (if any)

2021	*Most Outstanding Faculty Teaching Award* Blank Children's Hospital Pediatrics Residency, Des Moines, IA
2019	*Teaching & Academic Excellence Award* Blank Children's Hospital Pediatric Education Department, Des Moines, IA
2019	*Most Outstanding Fellow Teaching Award Recipient* Children's Mercy Hospital Graduate Medical Education, Kansas City, MO
2018	*Most Outstanding Fellow Teaching Award Nominee* Children's Mercy Hospital Graduate Medical Education, Kansas City, MO
2017	*Most Outstanding Fellow Teaching Award Nominee* Children's Mercy Hospital Graduate Medical Education, Kansas City, MO
2016	*Excellence in Teaching Award: Most Outstanding Pediatric Resident* Kansas University School of Medicine, Kansas City, KS
2016	*Most Outstanding Pediatric Resident* Kansas University Pediatric Residency, Kansas City, KS
2015	*Excellence in Residency Award Nominee: Exceptional Student Mentoring* Kansas University School of Medicine, Kansas City, KS
2015	*Resident Researcher of the Year Award* Kansas University Pediatric Residency, Kansas City, KS
2014	*Pediatric Hematology/Oncology Intern of the Year Award* Kansas University Pediatric Residency, Kansas City, KS

Publications and Presentations (if any)

- **Papers Published or In Press**

Kathryn E. Kyler, Brian R Lee, Earl F Glynn, Joel P Waddell, Mark A Hoffman, and Jennifer L Goldman. Clinical outcome and antibiotic dosing differences by weight in children with acute osteomyelitis. Hospital Pediatrics. Accepted on 4/27/2021.

Television Interview: Channel 8 KCCI News, Des Moines, IA. *COVID-19 Delta variant, upcoming school semester in Iowa, masks, and vaccines*. August 27, 2021

Television Interview: Channel 8 KCCI News, Des Moines, IA. *RSV, other illnesses keep Blank Children's Hospital full, doctor says masks should be worn this fall*. July 19, 2021.

Radio Interview: Iowa Public Radio – Talk of Iowa: *Vaccine Offers Children 'Return To Normalcy,' Iowa Doctors Say*. May 13, 2021.

Newspaper Interview: Des Moines Register, Des Moines, IA. *COVID vaccine will soon be offered to kids ages 12-15 — but will they come in for the shots?* May 11, 2021.

Radio Interview: WHO Radio, Des Moines, IA. *COVID-19 vaccine among adolescents*. May 6, 2021.

Newspaper Interview: Des Moines Register, Des Moines, IA. *Iowa doctor: 'It's going to be extremely difficult' to get COVID herd immunity if kids can't be vaccinated*. April 28, 2021.

Newspaper Interview: Des Moines Register, Des Moines, IA. *COVID-19 rate in kids may be higher than known, experts say, and until they can be vaccinated, pandemic may linger*. April 25, 2021.

Television Interview: Channel 8 KCCI News, Des Moines, IA. *What is PMIS? Rare illness linked to COVID-19 comes to Iowa*. May 18, 2020.

Television Interview: Channel 13 WHO News: *MIS-C among children in Iowa*. May 18, 2020.

Waddell, J. and McCulloh, R. "Pertussis." From: Ferri's Clinical Advisor. 2018.

Invasive mucormycosis management: mucorales PCR provides important, novel diagnostic information (poster presentation). IDWeek™2018. San Francisco, CA. October 2018.

Coauthor of hospital's outpatient antibiotic handbook. Children's Mercy Hospital. Kansas City, MO. August 2018.

Clinical course and antibiotic dosing in healthy vs non-healthy weight children with osteomyelitis (poster presentation). 2018 St. Jude/PIDS Pediatric Infectious Diseases Research Conference. Memphis, TN. March 2018.

Coauthor of hospital's outbreak/suspected outbreak investigation policy. Children's Mercy Hospital. Kansas City, MO. January 2018.

- **Scientific Presentations/Invited Lectures**

2021	Blank Children's Hospital, Des Moines, IA: Pediatric Grand Rounds Topic: COVID-19 vaccines in children
2021	Greater Regional Medical Center, Creston, IA: Lunch and Learn Topic: COVID-19 in children
2021	State of Iowa Annual School Nursing Conference, Des Moines, IA: Topic: COVID-19 in children
2021	Blank Children's Hospital, Des Moines, IA: Pediatric Residency didactic lecture series Topic: COVID-19 associated Multisystem inflammatory syndrome in children (MIS-C)
2021	Blank Children's Hospital, Des Moines, IA: Webinar for Blank Children's Hospital Employees Topic: COVID-19 pandemic and vaccines
2021	Clark County Hospital, Osceola, IA: Lunch and Learn Topic: COVID-19 pandemic and vaccines
2021	Blank Children's Hospital, Des Moines, IA: Hospital employee open forum Topic: Q&A session regarding COVID-19 vaccines
2021	Blank Children's Hospital, Des Moines, IA: Pediatric Residency board review lecture series Topic: Pediatric infectious diseases
2021	Blank Children's Hospital, Des Moines, IA: Pediatric Residency didactic lecture series Topic: Cervical lymphadenitis and skin/soft tissue infections
2021	Broadlawns Medical Center, Des Moines, IA: Family Medicine Residency didactic lecture series Topic: Top 10 outpatient pediatric infectious diseases
2020	Blank Children's Hospital, Des Moines, IA: Pediatric Grand Rounds Topic: Top 10 Vaccine Myths
2020	Blank Children's Hospital, Des Moines, IA: Clinical Pathology Conference Topic: Potts Puffy Tumor
2020	Blank Children's Hospital, Des Moines, IA: Pediatric Residency didactic lecture series Topic: Top 10 general outpatient pediatric infectious diseases
2020	Blank Children's Hospital, Des Moines, IA: Pediatric Residency didactic lecture series Topic: Infections in immunocompromised hosts
2020	Iowa Lutheran Hospital, Des Moines, IA: Family Medicine Residency didactic lecture series Topic: Top 10 general outpatient pediatric infectious diseases
2019	Blank Children's Hospital, Des Moines, IA: Pediatric Residency didactic lecture series Topic: Bugs and Drugs
2019	Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series

Topic: Congenital infections

2019 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series
Topic: Recurrent fevers

2019 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series
Topic: Gastroenteritis

2018 Progressive disseminated histoplasmosis of infancy (platform presentation). Kansas City Infectious Diseases Society. Kansas City, KS. September 2018.

2018 Children's Mercy Hospital, Clinical Pharmacology Mini Masters Course, Kansas City, MO.
Topic: Utilizing big data resources to generate pharmacologic hypotheses

2018 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Journal Club
Topic: Pharmacokinetic cefazolin modeling in bariatric surgery patients

2018 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series
Topic: Zoonoses

2017 Comparative analysis of initial antibiotic dosing among healthy weight, overweight, and obese children with osteomyelitis (poster presentation). IDWeek™2017. San Diego, CA. October 2017.

2017 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series
Topic: Viral CNS infections

2017 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series
Topic: Bacterial CNS infections

2017 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Journal Club
Topic: Cellulitis, cephalexin, & obesity

2017 University of Missouri-Kansas City School of Pharmacy, Kansas City, MO: Second year pharmacy student lecture series
Topic: Pediatric community-acquired pneumonia

2017 Children's Mercy Hospital, General Pediatric and Medicine/Pediatric Residents, Kansas City, MO: Core resident educational lecture series
Topic: Bugs and drugs

2017 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Research Conference
Topic: Utilizing informatics-based research to answer questions regarding appropriate antibiotic dosing among obese children

2017 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Fellows' didactic lecture series

Topic: Antibiotic resistance mechanisms – a three part series

2016 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Journal Club
Topic: Fever in returning traveler

2016 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Journal Club
Topic: Impact of reported beta-lactam allergy on inpatient outcomes multicenter prospective cohort study

2016 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Journal Club
Topic: Antimicrobial dosing and pediatric obesity: murky waters

2016 Kansas University, Department of Pediatrics, Kansas City, KS: Senior Resident Conference
Topic: Improving resident research in an attempt to further evidence-based medicine within pediatrics

2015 Improving pediatric immunization rates in the inpatient setting: a hospital-based intervention (poster presentation). Academic Pediatric Association Region VI Fall Meeting. Kansas City, KS. September 2015.

2015 Children's Mercy Hospital, Infectious Diseases Department, Kansas City, MO: Laboratory Presentation
Topic: Ceftolozane/tazobactam activity against *Pseudomonas aeruginosa* strains in pediatric cystic fibrosis patients

2015 Kansas University, Department of Pediatrics, Kansas City, KS: Neonatology Conference
Topic: Short & long term management of neonatal HIV

2014 Kansas University, Department of Pediatrics, Kansas City, KS: Board Prep lecture series
Topic: Presented various COMLEX Step 1 topics to incoming 1st year pediatric residents

2013 Kansas University, Department of Pediatrics, Kansas City, KS: Center for Child Health & Development Lecture Series
Topic: Congenital cytomegalovirus infections-neurodevelopmental/behavioral outcomes

2013 Kansas University, Department of Pediatrics, Kansas City, KS: Neonatology Conference
Topic: Neonatal bacterial meningitis