



SCHOOL of LAW

Cale Jaffe

Professor of Law, General Faculty
Director, Environmental Law and Community Engagement Clinic

August 26, 2022

VIA ELECTRONIC FILING ONLY

Hon. Edward F. Jewett, Clerk
Richmond City Circuit Court
400 North Ninth Street
John Marshall Courts Building
Richmond, VA 23219

RE: *Layla H., et al. v. Commonwealth, et al., Case No. CL22000632-00*

Mr. Jewett:

Enclosed please find for filing in the above-captioned matter the Motion of Virginia Clinicians for Climate Action Seeking Leave to File a Brief as *Amicus Curiae* in Support of Plaintiffs. Also included with this filing, as Attachment A, is the proposed Brief of Amicus Curiae Virginia Clinicians for Climate Action.

The Motion and Brief are being filed electronically through the Virginia Judiciary E-Filing System ("VJEFS"). If you should have any questions regarding this filing, please contact me at (434) 924-4776, or via email at cjaffe@law.virginia.edu.

Respectfully,

Cale Jaffe
Counsel to Virginia Clinicians for Climate Action

Cc (via email only):

Isak Howell, Counsel to Plaintiffs
Nate Bellinger, Counsel to Plaintiffs
Kimberly Willis, Counsel to Plaintiffs

Andrew Ferguson, Counsel to Defendants
Steven Popps, Counsel to Defendants
Jacqueline Hedblom, Counsel to Defendants
Erika Maley, Counsel to Defendants
Graham Bryant, Counsel to Defendants
Thomas Sanford, Counsel to Defendants

VIRGINIA:

**IN THE CIRCUIT COURT OF THE CITY OF RICHMOND
13TH JUDICIAL CIRCUIT OF VIRGINIA**

_____)	
LAYLA H., by her next friend)	
Maria Hussainzadah, <i>et al.</i> ,)	
)	
Plaintiffs,)	
)	Case. No. CL22000632-00
v.)	
)	
COMMONWEALTH OF VIRGINIA, <i>et al.</i>)	
_____)	

**MOTION OF VIRGINIA CLINICIANS FOR CLIMATE ACTION SEEKING LEAVE
TO FILE A BRIEF AS *AMICUS CURIAE* IN SUPPORT OF PLAINTIFFS**

Virginia Clinicians for Climate Action, by and through undersigned counsel, hereby files this Motion Seeking Leave to File a Brief as *Amicus Curiae* in Support of Plaintiffs. The proposed Brief of *Amicus Curiae* Virginia Clinicians for Climate Action is included with this Motion as Attachment A.

Virginia Clinicians for Climate Action (“Virginia Clinicians”) is an unincorporated association of over 450 medical professionals and allies.¹ As an organization, Virginia Clinicians works on climate policy in Virginia, with an emphasis on the health benefits of climate solutions and the health dangers of inaction. Virginia Clinicians’ work focuses on the public and environmental health impacts of climate change on patients, their families, and their communities.

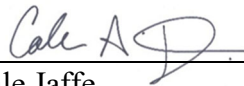
Virginia Clinicians respectfully submits that the filing of a brief as *amicus curiae* would be of assistance to the Court, which would provide a summary of the medical literature on the

¹ *Virginia Clinicians for Climate Action*, <https://www.virginiaclinicians.org/> (last visited Aug. 10, 2022). Virginia Organizing, a non-partisan statewide grassroots organization, is the fiscal agent for Virginia Clinicians for Climate Action, but Virginia Organizing is not itself seeking leave to submit a brief as *amicus curiae* or otherwise participate in this matter.

physical and mental health-related harms attributable to the effects of climate change. No party would be prejudiced by the filing of this *amicus* brief, as the brief would be filed on the same day that Plaintiffs’ Brief in Opposition is due to be filed and Defendants would have a full opportunity to respond in Defendants’ Reply Brief on or before September 2, 2022. The Circuit Court of the City of Richmond has granted motions seeking leave to file briefs as *amicus curiae* in other similar cases of significant public interest. *See, e.g., Soering v. McDonnell*, 84 Va. Cir. 564 (2012) (granting the Rutherford Institute’s motion to appear as *amicus curiae*); *Marshall v. Warner*, 64 Va. Cir. 389 (2004) (granting the Attorney General “leave to appear as *amicus curiae* and not as a party Defendant as he requested”); *Philip Morris Companies, Inc. v. American Broadcasting Companies, Inc.*, 46 Va. Cir. 1 (1994) (noting “several members of the television and printed press” appearing as *amici curiae*).

Amicus curiae Virginia Clinicians affirms that it reached out, by and through counsel, to all parties on August 11, 2022, more than two weeks prior to the filing of this Motion. Virginia Clinicians further affirms that Plaintiffs do not oppose the filing of this brief and Defendants take no position.

Respectfully submitted,



Cale Jaffe
Professor of Law, General Faculty
Director, Environmental Law and Community Clinic
University of Virginia School of Law
Tel: (434) 924-4776
cjaffe@law.virginia.edu

COUNSEL TO VIRGINIA CLINICIANS FOR CLIMATE ACTION

DATED: August 26, 2022

CERTIFICATE OF SERVICE

I hereby certify that the following counsel have been served with true and accurate copies of the **Motion of Virginia Clinicians for Climate Action** Seeking Leave to File a Brief as *Amicus Curiae* in Support of Plaintiffs and the proposed **Brief of *Amicus Curiae* Virginia Clinicians for Climate Action** in Support of Plaintiffs:

Isak J. Howell, Counsel for Plaintiffs
isak@howell-lawoffice.com

Nate Bellinger, Counsel for Plaintiffs
nate@ourchildrenstrust.org

Kimberly Willis, Counsel for Plaintiffs
kimberly@ourchildrenstrust.org

Andrew N. Ferguson, Counsel for Defendants
AFerguson@oag.state.va.us

Steven G. Popp, Counsel for Defendants
SPopps@oag.state.va.us

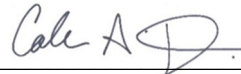
Jacqueline C. Hedblom, Counsel for Defendants
JHedblom@oag.state.va.us

Erika L. Maley, Counsel for Defendants
EMaley@oag.state.va.us

Graham K. Bryant, Counsel for Defendants
GBryant@oag.state.va.us

Thomas J. Sanford, Counsel for Defendants
TSanford@oag.state.va.us

DATED: August 26, 2022



Cale Jaffe, Univ. of Va. School of Law
Counsel to Va. Clinicians for Climate Action

Attachment A:

Brief of *Amicus Curiae* Virginia Clinicians for
Climate Action in Support of Plaintiffs

VIRGINIA:

**IN THE CIRCUIT COURT OF THE CITY OF RICHMOND
13TH JUDICIAL CIRCUIT OF VIRGINIA**

_____)	
LAYLA H., by her next friend)	
Maria Hussainzadah, <i>et al.</i> ,)	
)	
Plaintiffs,)	
)	
v.)	Case. No. CL22000632-00
)	
COMMONWEALTH OF VIRGINIA, <i>et al.</i>)	
_____)	

**BRIEF OF *AMICUS CURIAE* VIRGINIA CLINICIANS FOR CLIMATE ACTION
IN SUPPORT OF PLAINTIFFS**

Virginia Clinicians for Climate Action, by and through undersigned counsel, hereby files this brief as *amicus curiae* in support of Plaintiffs.^{1, 2}

I. STATEMENT OF IDENTITY AND INTERESTS OF *AMICUS CURIAE*

Virginia Clinicians for Climate Action (“Virginia Clinicians”) is an unincorporated association of over 450 medical professionals and allies.³ As an organization, Virginia Clinicians works on climate policy in Virginia, with an emphasis on the health benefits of climate solutions and the health dangers of inaction.⁴ Specifically, Virginia Clinicians’ advocacy focuses on the public and environmental health impacts of climate change on patients, their families, and their

¹ No party, party’s counsel, or person other than the *amicus curiae*, its members, and its counsel contributed to the preparation or submission of this brief.

² Elizabeth Putfark, a second-year law student enrolled at the University of Virginia School of Law, contributed significantly to the development of this brief.

³ *Virginia Clinicians for Climate Action*, <https://www.virginiaclinicians.org/> (last visited Aug. 10, 2022).

⁴ Virginia Organizing, a non-partisan statewide grassroots organization, is the fiscal agent for Virginia Clinicians for Climate Action, but Virginia Organizing is not itself seeking leave to submit a brief as *amicus curiae* or otherwise participate in this matter.

communities. The current chair and founder of Virginia Clinicians is Samantha Ahdoot, MD, FAAP, a practicing pediatrician in Northern Virginia.⁵

II. BACKGROUND

Plaintiffs allege that they have suffered and are continuing to suffer physical and mental harms attributable to the impacts of climate change. *See* Plaintiffs’ Complaint for Declaratory and Injunctive Relief, at ¶¶ 19, 22, 33-34, 40-41, 46, 49, 51-52, 55, 56, 59, 61, and 71-73 (filed Feb. 9, 2022). For example, Plaintiff LAYLA H. alleges that she has experienced “heat exhaustion and heat rash,” (¶ 19); Plaintiff AMAYA T. alleges difficulties in managing her asthma (¶ 22); Plaintiff TYRIQUE B. alleges that he suffers from a tick-related allergy (alpha-gal syndrome)⁶ that has spread more easily because of climate change (¶¶ 51-52); and Plaintiff KATERINA LEEDY alleges to be suffering mental health impacts (“stress, anxiety and fear”) linked to climate change (¶¶ 71-73). *Amicus curiae* Virginia Clinicians files this brief to affirm that: (1) they have documented similar ongoing and acute harms among their patient populations; and (2) the medical literature supports a finding that the adverse health impacts of climate change are here now.

III. ARGUMENT

Amicus curiae respectfully requests that the Court consider the scientific and public health findings on climate change and youth wellbeing in the Commonwealth of Virginia, some of which are summarized below.

⁵ Virginia Clinicians for Climate Action, *About*, <https://www.virginiaclinicians.org/about> (last visited August 15, 2022).

⁶ Alpha-gal syndrome is an allergic reaction to the galactose- α -1,3-galactose sugar molecule, which is found in most mammals. The CDC defines it as “a serious, potentially life-threatening allergic reaction.” *Alpha-gal Syndrome*, Centers for Disease Control and Prevention, <https://www.cdc.gov/ticks/alpha-gal/index.html> (last visited Aug. 12, 2022).

A. Higher Outdoor Temperatures Disproportionately Harm Adolescents.

Average temperatures in Virginia have increased by 1.5 degrees Fahrenheit (°F) over the last century, with a strong warming trend extending from the 1990s to the present.⁷ In addition to higher average temperatures, extreme heat events in the Commonwealth are projected to increase in both number and intensity.⁸ Higher temperatures have well-documented negative effects on children’s health. The American Academy of Pediatrics reports, “Studies performed in multiple countries have shown an increase in child morbidity and mortality during extreme heat events.”⁹ While incidents of heat related illnesses (“HRIs”) occur across all populations, children make up nearly half of those affected, suffering symptoms including heat rash, heat edema, cramps, loss of consciousness, heat exhaustion, and heat stroke.¹⁰ These symptoms can quickly turn deadly. A review of public health literature suggests that “adults experience a 2 to 3 percent increase in mortality with every 1°C (1.8°F) rise in temperature above” 81°F.¹¹ For children, mortality is estimated to rise at double that rate: 3 to 6 percent per degree Celsius of outdoor temperature increase.¹² Virginia’s higher-than-average humidity levels are likely to make these extreme heat events even more deadly.¹³

⁷ J. Runkle et al., *Virginia State Climate Summary 2022*, NOAA TECHNICAL REPORT 1 (2022), <https://statesummaries.ncics.org/downloads/Virginia-StateClimateSummary2022.pdf>.

⁸ *Id.* at 3.

⁹ Jerome A. Paulson et. al., *Global Climate Change and Children’s Health*, 136 PEDIATRICS 992, 994 (2015), <https://publications.aap.org/pediatrics/article/136/5/992/33836/Global-Climate-Change-and-Children-s-Health>.

¹⁰ Courtney W. Mangus & Therese L. Canares, *Heat-Related Illness in Children in an Era of Extreme Temperatures*, 409 PEDIATRICS IN REVIEW 97, 98 (2019). <https://publications.aap.org/pediatricsinreview/article/40/3/97/35260/Heat-Related-Illness-in-Children-in-an-Era-of?searchresult=1>.

¹¹ Joshua Graff Zivin & Jeffrey Shrader, *Temperature Extremes, Health, and Human Capital*, 26(1) FUTURE OF CHILDREN 31, 35 (2016). <https://eric.ed.gov/?id=EJ1101427>.

¹² *Id.*

¹³ See Alan I. Barreca, *Climate Change, Humidity, and Mortality in the United States*, 63 JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT 19, 21 (2012) (projecting that

Children are particularly vulnerable to excessive heat for many reasons. Their bodies adapt to changes in heat less quickly than adults. When they are active, children produce more heat and sweat less.¹⁴ Psychological factors, such as diminished decision-making capacity and greater susceptibility to peer pressure, increase children’s vulnerability to HRIs. They are simultaneously more likely to ignore signs of HRIs and less likely to take preventative measures to limit or avoid exposure to extreme heat.¹⁵ These risks are especially elevated for high-school athletes, for whom heat illness during practice or competition is a leading cause of death and disability.¹⁶ Moreover, research suggests that the cumulative heat exposure experienced by children today may inhibit their cognitive skill development over time.¹⁷

Plaintiffs have alleged several injuries due to increasing temperatures in Virginia. Plaintiffs AMAYA T., CLAUDIA SACHS, ELIZABETH M., KYLA H., AND KATERINA LEEDY have all alleged to have suffered from heat-related illnesses while engaging in athletic training and competition. *See* Plaintiffs’ Complaint for Declaratory and Injunctive Relief, at ¶¶ 23, 28, 59, and 71.

under a business-as-usual climate model, “hot and humid areas, like the South, will experience increases in mortality rates”),

<https://www.sciencedirect.com/science/article/pii/S0095069611001033>.

¹⁴ Expert Report of Susan E. Pacheco, MD & Jerome E A. Paulson, MD, FAAP, at 6, *Juliana v. United States*, 217 F.Supp. 3d 1224 (No. 6:15-cv-01517-TC), http://climatecasechart.com/wp-content/uploads/sites/16/case-documents/2018/20180628_docket-615-cv-1517_exhibit-1.pdf (hereinafter “Expert Report”).

¹⁵ *Id.* at 6.

¹⁶ Centers for Disease Control and Prevention, *Heat Illness Among High School Athletes --- United States, 2005-2009*, 59 MORBIDITY AND MORTALITY WEEKLY REPORT 1009 (2010), <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5932a1.htm>. *See also* Centers for Disease Control and Prevention, *Extreme Heat*, https://www.cdc.gov/climateandhealth/pubs/extreme-heat-final_508.pdf (discussing impacts on young children and individuals working outside) (last visited August 15, 2022).

¹⁷ J. Goodman *et al.*, *Heat and Learning*, NATIONAL BUREAU OF ECONOMIC RESEARCH, WORKING PAPER SERIES 1, 2 (2018), <https://scholar.harvard.edu/files/joshuagoodman/files/w24639.pdf>.

B. Climate Change Is Linked to Poorer Respiratory Health for Children.

Amicus curiae Virginia Clinicians asserts that the utilization of fossil fuels driving climate change is also responsible for some of the harms that physicians are seeing in pediatric respiratory health.¹⁸ Children suffer disproportionately ill effects from higher pollen counts, which have been linked to climate change.¹⁹ Indeed, studies have shown an association between elevated pollen counts and very early spring onset with increased emergency room visits and hospitalizations in children with asthma.²⁰ Because their lungs are underdeveloped and because they breathe in more air per unit of time than adults, children also suffer respiratory harm from air pollution associated with fossil-fuel infrastructure.²¹ Such air pollution is linked to numerous diseases in children, including asthma, cancer, and neurodevelopmental disorders.²² High temperature is a strong predictor of ground-level ozone pollution, a potent lung irritant. Ozone exposure precipitates child

¹⁸ Jill A. Poole, MD, *et al.*, *Impact of weather and climate change with indoor and outdoor air quality in asthma: A Work Group Report of the AAAAI Environmental Exposure and Respiratory Health Committee*, 143(5) JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY 1702 (2019), <https://www.sciencedirect.com/science/article/pii/S0091674919302817?via%3Dihub>.

¹⁹ William R.L. Anderegg, *et al.*, *Anthropogenic Climate Change is Worsening North American Pollen Seasons*, 118(7) PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (2021), <https://www.pnas.org/doi/full/10.1073/pnas.2013284118>.

²⁰ See Amir Sapkota, PhD, *et al.*, *Association Between Changes in Timing of Spring Onset and Asthma Hospitalization in Maryland*, 3(7) JAMA NETWORK OPEN (2020), <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767881>; B. Erbas *et al.*, *Outdoor pollen is a trigger of child and adolescent asthma emergency department presentations: a systematic review and meta-analysis*, 73 ALLERGY 1632 (2018), <https://pubmed.ncbi.nlm.nih.gov/29331087/>.

²¹ Expert Report, *supra* note 14, at 16.

²² Philip J. Landrigan, MD, *et al.*, *The Lancet Commission on Pollution and Health*, 391 (10119) THE LANCET 462 (2018), [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0).

asthma exacerbation and hospitalization,²³ as well as reduced child lung growth.²⁴ In fact, Plaintiffs allege that they are already suffering acute respiratory harms due to increased pollen and higher temperatures, including asthma and allergen sensitivity. *See* Plaintiffs' Complaint for Declaratory and Injunctive Relief, at ¶¶ 22, 34, 46, 52, and 72.

C. Children Face Elevated Risk from Environmental Hazards.

Climate change has also increased children's exposure to environmental hazards in their daily lives. In Virginia, climate change has increased the prevalence of extreme rainfall and extreme wind events.²⁵ When floodwaters recede, mold and mildew are often left behind.²⁶ Even in the absence of extreme weather, climate change has magnified the daily environmental hazards facing children. Warming temperatures linked to climate change are a contributing factor to tick-range expansion and increased transmission of tick-borne illnesses.²⁷ The Virginia Department of Health has reported rising rates of Lyme disease and other tick-borne illnesses in recent years.²⁸

²³ Daniela Nuvolone, *et al.*, *The Effects of Ozone on Human Health*, 25(9) ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH INTERNATIONAL 8074 (2018), <https://pubmed.ncbi.nlm.nih.gov/28547375/>.

²⁴ W. James Gauderman, PhD, *et al.*, *Association of Improved Air Quality with Lung Development in Children*, 372 NEW ENGLAND JOURNAL OF MEDICINE 905 (2015), <https://www.nejm.org/doi/10.1056/NEJMoa1414123>.

²⁵ Virginia Academy of Science, Engineering, and Medicine, *The Impact of Climate Change on Virginia Coastal Areas* (June 2021), http://www.vasem.org/wpcontent/uploads/2021/08/VASEM_VirginiasCoastalAreasReport_FIN_AL.pdf

²⁶ Expert Report, *supra* note 14, at 2.

²⁷ Rebecca J. Eisen, *et al.*, *Linkages of Weather and Climate With Ixodes scapularis and Ixodes pacificus (Acari: Ixodidae), Zoonotic Transmission of Borrelia burgdorferi, and Lyme Disease in North America*, 53(2) JOURNAL OF MEDICAL ENTOMOLOGY 250 (2016); Daniel E. Sonenshine, *Range Expansion of Tick Disease Vectors in North America: Implications for Spread of Tick-Borne Disease*, 15(3) INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH 478 (2018), <https://www.mdpi.com/1660-4601/15/3/478>.

²⁸ Virginia Department of Health, *Lyme Disease and Other Tickborne Illnesses are Increasing* (Aug. 22, 2019), <https://www.vdh.virginia.gov/news/archived-news-releases/2019-regional-news-releases/lyme-disease-and-other-tickborne-illnesses-are-increasing/>.

While most children diagnosed with Lyme disease make a full recovery, symptoms and treatment courses associated with arthritis and meningitis can linger for months, interfering dramatically with daily life during a young person’s formative years.²⁹ Plaintiffs allege that they have experienced many of these environmental hazards firsthand. *See* Plaintiffs’ Complaint for Declaratory and Injunctive Relief, at ¶¶ 16, 18, 33, 51, 53, 55, and 63.

D. Climate Change Anxiety Harms the Mental Health of Children.

The medical literature has documented that climate change and government inaction act as chronic stressors for children and adolescents.³⁰ Mental health professionals find that stress over the present and future impacts of climate change can lead to changes in “behavior, development, memory, executive function, decision-making, and scholastic achievement.”³¹ Children have developed post-traumatic stress following climate-induced disasters, as well as obsessive-compulsive disorder, depression, and suicidal thoughts due to persistent fears about a future they cannot control.³² A recent review of twenty years’ worth of literature on climate change and children’s health found consensus among researchers that fear over climate change can cause serious symptoms of anxiety and depression in children and young adults.³³

²⁹ Jennifer S. Read, *Tickborne Diseases in Children in the United States*, 40 PEDIATRICS IN REVIEW 381, 386 (2019), <https://doi.org/10.1542/pir.2018-0304>.

³⁰ Caroline Hickman *et al.*, *Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey*, 5 LANCET PLANETARY HEALTH 863, 864 (2021), <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2821%2900278-3>

³¹ Susan Clayton *et al.*, *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*, American Psychological Association, at 6 (Mar. 2017), <https://www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf>.

³² *Id.* at 36.

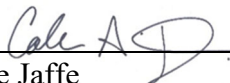
³³ Terra Leger-Goodes *et al.*, *Eco-anxiety in children: A scoping review of the mental health impacts of the awareness of climate change*, FRONTIERS IN PSYCHOLOGY, at 1, 3, 7 (July 25, 2022), <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.872544/full> (“Reported vulnerability factors that are associated with increased worry included... believing that the governmental responses are unsatisfactory”).

The impacts can be acute. Plaintiff KATERINA LEEDY, for example, alleges to be suffering mental health impacts (“stress, anxiety and fear”) linked to climate change. *See* Plaintiffs’ Complaint for Declaratory and Injunctive Relief, at ¶¶ 71-73. Other Plaintiffs expressed similar concerns about mental health impacts. *See id.* at ¶¶ 21, 40, 46, 50, 61, and 66.

IV. CONCLUSION

Research consistently confirms the link between climate change and harm to human health. In Virginia, that harm is uniquely felt by young people exposed to physical and mental stress due to extreme heat, extended pollen seasons, and heightened environmental hazards in the places they live and play.

Respectfully submitted,



Cale Jaffe
Professor of Law, General Faculty
Director, Environmental Law and Community Clinic
University of Virginia School of Law
Tel: (434) 924-4776
cjaffe@law.virginia.edu

COUNSEL TO VIRGINIA CLINICIANS FOR CLIMATE ACTION

DATED: August 26, 2022