IN THE SUPREME COURT OF MISSOURI

No. SC98536

Missouri State Conference of the National Association
for the Advancement of Colored People, et al.,
Appellants,

v.

State of Missouri, et al.,
Respondents,

On Appeal from the Circuit Court of Cole County
Case No. 20AC-CC00169
Honorable Jon E. Beetem

BRIEF OF AMICI CURIAE ELEVEN DOCTORS AND PROFESSORS OF EPIDEMIOLOGY

Accompanied by a Motion for Leave to File Brief Amici Curiae.

Michael A. Wolff, #27633
ST. LOUIS UNIVERSITY SCHOOL
OF LAW LEGAL CLINICS
100 N. Tucker Blvd.
St. Louis, MO 63101
Telephone: (314) 691-4377
mike@mikewolff-law.com

Debo P. Adegbile
WILMER CUTLER PICKERING
HALE AND DORR LLP
7 World Trade Center
250 Greenwich Street
New York, NY 10007
Telephone: (212) 230-8800
debo.adegbile@wilmerhale.com

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

STATUTES, RULES, AND REGULATIONS

OTHER AUTHORITIES

INTRODUCTION & IDENTITY OF AMICI

Amici curiae—Dr. Hilary Babcock, Dr. Victoria Fraser, Dr. Elvin Geng, Prof. Kimberly Johnson, Dr. Megha Mehrotra, Dr. Aaloke Mody, Dr. Arthur Reingold, Dr. Sahar Saeed, Dr. Enbal Shacham, Dr. Gregory Storch, and Dr. David Warren—are leading doctors and professors in the nation and in the state of Missouri specializing in epidemiology, a scientific field that studies the spread, causes, and control of infectious diseases and other factors relating to public health. Some amici, in addition to their academic studies of infectious diseases, do clinical work in patient settings. Among them, amici have published hundreds of peer-reviewed articles on topics relating to infectious diseases; have taught medical students, residents, and fellows; have conducted research on deadly infectious diseases in settings around the world; and served in full-time or advisory roles at the Centers for Disease Control and Prevention ("CDC"), the World Health Organization, and other governmental and non-governmental entities. Their biographies are attached as Appendix A.

Amici have worked on issues relating to infectious diseases throughout their entire careers, and are presently engaged in studying and combating the COVID-19 pandemic from a variety of perspectives, including research and practice settings. Based on that work, they have concluded that this pandemic poses unique risks to the public; that, in light of the high transmissibility of the virus, those risks are particularly acute at polling locations; and that governments should avoid compelling voters to appear at such locations when alternatives are available. They submit this brief to provide the Court with an overview, based on their experience and expertise in epidemiology, of the public health issues relevant to this case and in particular how those issues implicate polling locations and other voting options.

Appellants have consented to the filing of this brief. Respondents have not consented to the filing of this brief, objecting on the ground that it is out of time, and this brief is accompanied by a motion for leave to file out of time.[1]

STATEMENT OF THE CASE

This litigation concerns the rights of Missourians to vote without endangering themselves and the public health by going in person to polling locations or notaries during the COVID-19 pandemic. On April 17, 2020, the Missouri State Conference of the National Association for the Advancement of Colored People, the League of Women Voters of Missouri, and three Missouri registered voters (the "appellants") filed a petition for injunctive and declaratory relief, naming as defendants the State of Missouri, Missouri Secretary of State John Ashcroft, and local officials. In relevant part, appellants argued that voters self-isolating due to the COVID-19 pandemic should be allowed to cast an absentee ballot under the statutory provision for individuals who cannot vote in person "due to ... [i]ncapacity or confinement due to illness," § 115.277.1(2), RSMo, and that preventing voters self-isolating due to COVID-19 from casting absentee ballots, or requiring notarization of such ballots, unduly burdens the fundamental right to vote recognized by the Missouri Constitution. A002-003; A009; A011.

---

[1] No party assisted in the drafting of this brief. No party made any final contribution toward the preparation of this brief, which was prepared by the undersigned counsel pro bono.

The state defendants moved to dismiss. A001. On May 18, 2020, the Circuit Court of Cole County granted that motion. A016. Among other grounds, the Court concluded that granting the relief sought by appellants—which was based on the unique context of the COVID-19 pandemic—would be tantamount to ordering that "any voter who fears catching *any* illness—not just Covid-19—is authorized by Missouri law to cast an absentee ballot in any future election." A001. This appeal followed.

SUMMARY OF ARGUMENT

The relief sought by appellants—an order allowing absentee voting without notarization by those self-isolating to avoid spreading or being infected with the virus that causes COVID-19—is necessary in light of the unique dangers posed by this virus and the features of polling locations that make them prime sites for transmission.

First, the virus has several features which collectively pose a unique threat to the public. It is highly contagious, spreading through a population with no preexisting immunity via both person-to-person interactions and surfaces. It is severe and deadly, posing serious risks to all people and in particular to certain high-risk populations. And it is difficult to prevent, with vaccines and testing unlikely to control spread in the near future and social distancing providing the only fully effective method for preventing spread at present. *Infra* pp. 4-14.

Second, polling locations are particularly susceptible to virus transmission. To vote in person, large numbers of people must gather, often in long and slow-moving lines and in a confined space, and touch common surfaces and objects. While mitigation measures—such as the wearing of masks and the cleaning and disinfecting of surfaces—

can reduce risk, none is as effective as giving voters the option of avoiding these locations by voting absentee. *Infra* pp. 15-24.

Finally, requiring absentee voters to have their ballots notarized would undermine the benefits of absentee voting by requiring voters to come into close proximity with an individual they do not know and with whom they would not otherwise have to interact. Requiring such interactions would endanger both those two parties and all others with whom they come into contact. *Infra* pp. 24-26.

ARGUMENT

I. COVID-19 Is a Deadly Disease Caused by a Highly Infectious Virus that Can Be Effectively Prevented Only Through Social Distancing.

In a matter of months, the COVID-19 pandemic has infected nearly two million Americans—including approximately fifteen thousand Missourians—and claimed the lives of over one hundred thousand Americans—including nearly one thousand Missourians.[2] These individuals have been infected with a respiratory virus known as SARS-CoV-2, which causes the disease known as COVID-19. The virus is a respiratory virus—affecting the organs and structures that allow humans to breathe—with patients typically presenting with fever, cough, and shortness of breath, which may escalate to

---

[2] Ctr. for Systems Science and Engineering at Johns Hopkins University, *COVID-19 Dashboard*, https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6 (accessed June 8, 2020); Mo. Dep't of Health & Senior Services, *Missouri COVID-19 Dashboard*, http://mophep.maps.arcgis.com/apps/MapSeries/index.html?appid=8e01a5d8d8bd4b4f85add006f9e14a9d (accessed June 8, 2020).

respiratory failure and other serious, life-threatening complications. *See* CDC, *Symptoms of Coronavirus*.[3]

Drawing on decades of experience in epidemiological research and practice, and on their recent work responding to this pandemic, amici believe that three aspects of this virus may be relevant to the Court in deciding the issues before it: First, the virus is highly contagious, due to a combination of factors including that the human population has no preexisting immunity; that the virus spreads easily through tiny droplets expelled when a person speaks, coughs, or sneezes; and that individuals who may not yet know they are infected can transmit the virus. Second, the virus is severe and deadly, posing risks to all people and in particular to the elderly, to members of racial and ethnic minority populations, and individuals with preexisting conditions. Third, infection with the virus is at present difficult to prevent, with vaccines unlikely to be available in the near future and social distancing measures offering the only consistently effective method of preventing spread at present. In combination, these factors make this virus unlike any other that has circulated in the American population in the last 100 years, justifying the relief sought by appellants.

A. The Virus Is Highly Contagious.

The virus has spread rapidly—from the first human cases in late 2019 to, as of this writing, approximately seven million confirmed cases worldwide (a figure that likely represents only a fraction of the true number infected). *See* Ctr. for Systems Science and

[3] Available at https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html (accessed June 8, 2020)

Engineering at Johns Hopkins University, *COVID-19 Dashboard*, *supra* n.2. Generally, the rate at which a virus spreads may be driven by a variety of factors, including but not limited to the level of preexisting immunity in the population; the timetable on which an individual becomes infected, becomes contagious, and manifests symptoms; and the manner in which the virus is spread from person to person. In the case of this virus, each of these factors serves to explain its rapid rate of spread.

First, this is a "novel" virus, or a virus to which no human has previously been exposed and had the opportunity to become immune.[4] Accordingly, the entire population was susceptible to this virus when it emerged in late 2019. That makes this virus distinct from viruses like, for example, certain strains of seasonal influenza, in which spread is slowed by the immunity of individuals who had previously been infected with related strains of influenza virus.

Second, the virus is easily spread from one person to another—more so than influenza viruses—spreading through tiny droplets that infected individuals expel regularly when they speak, cough, sneeze, or the like. *See* CDC, *How COVID-19 Spreads*.[5] These droplets may be transferred directly from one person to another, or through the touching of surfaces—for example, when an infected person touches a surface with a hand he or she has coughed into and then another person touches that same

---

[4] As discussed *infra* p. 13, it is not yet known whether individuals previously infected with the virus become immune, or for how long any such immunity would last.

[5] Available at https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html (accessed June 8, 2020).

surface and then touches his or her face. *Id.* Transmission of the virus can occur in any location where there is close proximity between individuals, or in any location where multiple individuals touch the same surfaces. *Id.* While the degree to which an infected person spreads the virus to others depends on the precautions taken by that person, there have been numerous documented "super-spreader events," at which a single person causes widespread infection to a large number of people, often as a result of being in an indoor space with a large number of people for an extended period of time.[6]

Finally, individuals who have become infected with the virus can transmit the virus before showing symptoms of COVID-19. *See* CDC, *How COVID-19 Spreads*, *supra* n.5. Many viruses can be spread by infected individuals only when those individuals have become symptomatic; for example, smallpox and the 2002 SARS virus. *See* CDC, *Frequently Asked Questions About SARS* (May 3, 2005).[7] The virus that causes COVID-19, however, may be spread by an infected individual who is not yet manifesting any symptoms—that is, people infected with the virus may spread it without

---

[6] *See, e.g.*, Hamner, Lea et al., *High SARS-CoV-2 Attack Rate Following Exposure at a Choir Practice — Skagit County, Washington*, 69 Morbidity & Mortality Wkly. Rep., March 2020, https://www.cdc.gov/mmwr/volumes/69/wr/mm6919e6.htm (detailing incident in which between 53.3% and 86.7% of choir members were infected as result of a single infected person attending choir practice); Woodward, *Coronavirus Super-Spreader Events All Have Notable Similarities—and They Reveal the Types of Gatherings We Should Avoid for Years*, Business Insider (May 14, 2020), https://www.businessinsider.com/coronavirus-super-spreader-events-reveal-gatherings-to-avoid-2020-5 (describing super-spreader events in Daegu, South Korea; Westchester, New York; Chicago, Illinois; Westport, Connecticut; Pasadena, California; and Skagit County, Washington).

[7] Available at https://www.cdc.gov/sars/about/faq.html.

knowing that they have it. *Id.* Compounding matters, this virus has a relatively long incubation period, or period between when an individual is first infected and when he or she begins to show symptoms. CDC, *Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19)* (May 20, 2020).[8] As a result, an individual may spread the virus for several days before having any indication that he or she has been doing so. This, combined with the lack of widespread testing discussed *infra* pp. 11-12, means that isolating only persons known to be infected will not stop the spread of the virus.

B. The Virus Poses Severe Risks to All People, Particularly but Not Limited to Certain High-Risk Populations.

The virus targets the human respiratory system and has presented a substantially higher fatality rate than other viruses that have circulated among the American public through similar means of transmission in recent decades. Individuals with confirmed cases have displayed a range of symptoms, and while the most severe symptoms have appeared most frequently in certain high-risk populations, all people are at risk of contracting severe cases.

The common symptoms are fever, cough, and shortness of breath; other identified symptoms include muscle aches, headaches, chest pain, diarrhea, coughing up blood, sputum production, runny nose, nausea, vomiting, sore throat, loss of senses of taste and smell. *See* CDC, *Symptoms of Coronavirus*, *supra* n.3. Clinical manifestations may

---

[8] Available at https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html.

escalate to respiratory failure and other serious, life-threatening complications. *Id.* Due to the respiratory impacts of the disease, individuals may need to be put on oxygen, and in severe cases, patients may need to be intubated and put on a ventilator. Approximately 5.7% of Americans, and 5.6% of Missourians, with confirmed cases of COVID-19 have died from it.[9]

People of every age can and have contracted COVID-19, including severe cases, but geriatric patients are at the greatest risk of severe cases, long-term impairment, and death. *See* CDC, *Symptoms of Coronavirus*, *supra* n.3. Likewise, those with immunologic conditions and with other pre-existing conditions, such as hypertension, certain heart conditions, lung diseases (*e.g.*, asthma), diabetes mellitus, obesity, and chronic kidney disease, are at high risk of a life-threatening COVID-19 illness. *See* CDC, *People Who Are at Higher Risk for Severe Illness*.[10] Many of these are common conditions in the population. For example, 35.0% of Missouri adults have obesity. *See* CDC, *Adult Obesity Prevalence Maps* (Oct. 29, 2019).[11] Information available to date shows that, if infected with the virus, racial and ethnic minority populations, especially African Americans, are at a substantially elevated risk of developing life-threatening

---

[9] Ctr. for Systems Science and Engineering at Johns Hopkins University, *COVID-19 Dashboard*, *supra* n.2; Mo. Dep't of Health & Senior Services, Missouri COVID-19 Dashboard, *supra* n.2.

[10] Available at https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html (accessed June 8, 2020).

[11] Available at https://www.cdc.gov/obesity/data/prevalence-maps.html.

COVID-19 illnesses and of dying of COVID-19. *See* CDC, *COVID-19 in Racial and Ethnic Minority Groups*.[12]

It is not yet fully understood which populations or preexisting conditions are at the greatest risk of developing severe cases. For example, while children have generally been believed to be less susceptible to severe cases of COVID-19, there is emerging evidence that children infected with the virus that causes COVID-19 may experience severe, even deadly, inflammation of the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs. *See* CDC, *Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19* (May 20, 2020).[13]

C. At Present, the Virus Can Effectively Be Prevented Only Through Social Distancing.

Generally, transmission of viruses long-established in the population may be prevented through, *inter alia*, testing and isolation of confirmed cases, vaccinations, and the presence of widespread (or "herd") immunity in the population. As detailed below, these mechanisms are unlikely to prevent the spread of this virus in the near future. Accordingly, social distancing and related strategies are the only known effective measures for preventing the spread of the virus among the general public, with other measures such as the wearing of masks, handwashing, and the cleaning and disinfecting of surfaces helping to curb spread.

---

[12] Available at https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/racial-ethnic-minorities.html (accessed June 8, 2020).

[13] Available at https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/children/mis-c.html.

Testing for the virus is currently not available at a scale that would allow the identification and isolation of infected individuals to an extent sufficient to prevent further spread of the virus. Given the lack of widespread testing in the United States, including in Missouri, combined with the long incubation period of the virus, it is not presently possible to identify and isolate all infected individuals in a manner that would prevent further spread. Through May, the United States conducted an average of 330,000 tests per day, falling well short of the more than 900,000 tests per day that researchers considered necessary to curb spread through identification and isolation.[14] Missouri's 4,000 tests a day also fails to meet the necessary 9,768 tests per day that researchers recommended it have been able to administer by May 15.[15] Missouri presently ranks 45 out of 50 states in the number of per capita tests administered since the pandemic. *See* Johns Hopkins University, *Cases, Deaths, and Testing in All 50 States* (June 6, 2020).[16]

---

[14] *See* Feuer, *FDA Authorizes Quest's Coronavirus Test With At-Home Sample Collection; Shares Rise*, CNBC (May 28, 2020), https://www.cnbc.com/2020/05/28/fda-authorizes-quests-coronavirus-test-with-at-home-sample-collection.html; Jha, Ashish J., Benjamin Jacobson, Stefanie Friedhoff, & Thomas Tsai, *HGHI and NPR Publish New State Testing Targets*, Pandemics Explained (May 7, 2020), https://globalepidemics.org/2020/05/07/hghi-projected-tests-needed-may15.

[15] *See* Stein, et al., *U.S. Coronavirus Testing Still Falls Short. How's Your State Doing?*, NPR (May 7, 2020), https://www.npr.org/sections/health-shots/2020/05/07/851610771/u-s-coronavirus-testing-still-falls-short-hows-your-state-doing; Suntrup, *Spike in Missouri Virus Deaths Due to Reporting Delays, Health Director Says*, St. Louis Post-Dispatch (May 22, 2020), https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/spike-in-missouri-virus-deaths-due-to-reporting-delays-health-director-says/article_360c7433-a23a-57d1-a1f0-76c250343348.html.

[16] Available at https://coronavirus.jhu.edu/testing/states-comparison/testing-state-totals-bypop.

In short, there is no widely available way for an individual to confirm that he or she has or has not been infected prior to engaging in activities that would entail contact with others. To prevent increasing the scope of the outbreak of COVID-19, it must be assumed that anyone could be infected and infect another person.

Vaccination is unlikely to be a viable option for preventing the spread of the virus at least through November, and likely for substantially longer. There is not yet any FDA-approved vaccine that could be used to immunize the population to the virus. It is unlikely that an FDA-approved vaccine will be available for approximately 12 to 18 months. Indeed, vaccine development may take longer than that due to the number of steps in the process of development, trial and error, scaling to clinical trials, assessing side effects, and assessing efficacy across the population at large. *See* Ercolano, *A Coronavirus Vaccine is in the Works—But It Won't Emerge Overnight*, Johns Hopkins University (April 16, 2020).[17] And even once any vaccine is confirmed to be effective, further time will be required to produce, distribute, and administer vaccines at scale. *Id.*

Similarly, the presence of widespread, or "herd," immunity in the population is unlikely to prevent the spread of the virus at least through November, and likely for substantially longer. Herd immunity is present when a high percentage of the population has become immune to an infectious disease. Such herd immunity would dramatically slow the spread of the virus, as infected persons can become dead-ends for the virus, so to speak, because the people they interact with are immune to further transmission. A

---

[17] Available at https://hub.jhu.edu/2020/04/16/coronavirus-vaccine-timeline.

substantial majority of a population must be immune in order to achieve herd immunity, depending on the infectiousness of the agent. In this context, an individual's immunity can come from either a vaccine or from previous infection. Due to the virus's novelty, we do not know whether any immunity generated by previous infection lasts permanently, for a specified period, or whether reinfection is possible. *See* CDC, *Frequently Asked Questions: Symptoms & Testing*.[18] As a result, herd immunity is unlikely unless and until the development and widespread use of an effective vaccine or a sufficiently high proportion of the population has been infected and rendered immune.

As neither testing, vaccination, nor herd immunity will be viable mechanisms for preventing the spread of the virus in the near future, the only ways to limit its spread are self-isolation, social distancing, frequent handwashing, and disinfecting surfaces. Self-isolation involves not physically interacting with those outside one's household. Social or physical distancing is maintaining at least six feet of distance between individuals. Both of these interventions are aimed at keeping infected individuals far enough apart from other individuals so that they do not pass the virus along. Frequent handwashing and regular disinfecting of surfaces can help curb the spread via contaminated surfaces.

While we cannot yet definitively determine the full effects of social distancing measures, social distancing has worked to slow the spread of respiratory viruses generally and in places that are ahead of Missouri and the United States in the current pandemic.

---

[18] Available at https://www.cdc.gov/coronavirus/2019-ncov/faq.html#Symptoms-&-Testing (accessed June 8, 2020).

There is evidence that cities and states that implemented stay-at-home orders experienced reduced transmission. *See, e.g.*, Matrajt & Leung, *Evaluating the Effectiveness of Social Distancing Interventions to Delay or Flatten the Epidemic Curve of Coronavirus Disease*, 26 Emerging Infectious Diseases, Aug. 2020;[19] Soumya et al., *Association of Stay-at-Home Orders With COVID-19 Hospitalizations in 4 States*, J. Am. Med. Ass'n (May 27, 2020).[20] Current modeling shows that social distancing and stay-at-home orders are lessening transmission.

* * *

Given the virus's contagiousness and severity—and given that it is unlikely that testing, vaccination, and herd immunity will prevent the spread, at least through November—it is essential that all individuals, no matter their testing status or membership in a high-risk group, take measures to prevent the spread of the virus, including by minimizing contact with individuals outside their household and avoiding spaces in which large numbers of people gather in proximity and touch the same surfaces.

II. Polling Locations Present Unavoidable Increased Risks of Transmission of the Virus that Causes COVID-19.

The risk of transmission is particularly acute at polling locations, where large numbers of people congregate indoors and touch common surfaces that can carry the virus. Attempts to minimize these risks are unlikely to effectively prevent spread, given limitations in widespread testing and availability of personal protective equipment. In

[19] Available at https://wwwnc.cdc.gov/eid/article/26/8/20-1093_article.

[20] Available at https://jamanetwork.com/journals/jama/fullarticle/2766673.

other states that have moved forward with in-person voting during the pandemic, poll workers have subsequently tested positive for COVID-19 and public health authorities have concluded that person-to-person transmission occurred at polling locations. *Infra* pp. 21-23. Similar risks will be present in Missouri's upcoming elections, and voters will be placed at great risk if not given the option of voting absentee.

A. Polling Locations Pose Inherent Virus Transmission Risks.

As discussed *supra* pp. 6-7, the virus can spread when individuals are in close proximity and when individuals touch common surfaces. Both conditions are likely to be present at polling locations.

Polling locations are often situated in crowded, indoor sites where voters are exposed to each other for extended periods of time. Identification cards and ballots need to physically exchange hands. This makes them prime vectors for virus transmission. Voters, observers, greeters, and other poll workers must all congregate in places with low ventilation, which creates conditions for airborne transmission. These settings are not unlike those that researchers believe may have contributed to transmission among medical staff and major outbreaks in nursing facilities. *See* Prather, et al., *Reducing Transmission of SARS-CoV-2*, Sci. (May 27, 2020).[21]

The virus can also be transmitted through contaminated surfaces. Polling locations contain many common surfaces that virtually all voters must touch, such as doors, poll books, pens, identification cards, and voting machines. A voter carrying the

---

[21] Available at https://science.sciencemag.org/content/early/2020/05/27/science.abc6197.

virus may spread droplets to one of these surfaces, where the virus can live for up to three days. An otherwise healthy voter might touch the contaminated surface, pick up the virus, and inadvertently complete the transmission by touching their face with the contaminated hand.

The dangers posed by polling sites may be particularly pronounced in the coming elections. High turnout or a lengthy voting process can result in long wait times, furthering the risks posed by voters gathering in proximity and in indoor spaces. Missouri has a history of long lines on election day, particularly in highly anticipated contests with long ballots. *See Election Officials Say Delays at Polling Locations Attributed to Heavy Turnout, Lengthy Ballot*, 41 KSHB (Nov. 8, 2016) (reporting lines of over two hours in the November 2016 election).[22] Turnout in 2020 elections has, to date, been unusually high.[23] The August and November elections this year will feature not only contests for a congressional seat, statewide offices, and the presidency, but also ballot measures on topics including Medicaid eligibility and term limits, which may further extend waiting times. *See* Missouri Secretary of State's Office, 2020 Ballot

---

[22] Available at https://www.kshb.com/news/political/missouri-and-kansas-voters-head-to-the-polls-on-election-day.

[23] Isenstadt, *Trump Drives Massive Turnout in Primaries Despite Token Opposition*, Politico (Feb. 16, 2020), https://www.politico.com/news/2020/02/16/trump-campaign-voter-turnout-115338; Lopez, *The Democratic Voter Surge Was Very Real on Super Tuesday*, Vox (Mar. 4, 2020), https://www.vox.com/policy-and-politics/2020/3/4/21164518/super-tuesday-results-voter-turnout.

Measures[24]; U.S. Gov't Accountability Office, *Observations on Wait Times for Voters on Election Day 2012*, at 31 (2014).[25] The crowds and lines resulting from higher turnout or longer ballot-completion times would further expose in-person voters to the risks of transmission inherent to polling locations.

These risks pose particular dangers to poll workers, who must spend long hours inside, in proximity to voters and other poll workers. And poll workers tend to disproportionately fall in high-risk age ranges: in the 2018 general election, 58% of poll workers were over 61, and 27% were over 70.[26] Individuals over 60 years old have tended to have the most severe complications and the highest rates of hospitalizations due to COVID-19. *See* Shikha et al., *Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019*, 69 Morbidity & Mortality Wkly. Rep., March 2020.[27]

---

[24] Available at https://www.sos.mo.gov/elections/petitions/2020BallotMeasures (accessed June 8, 2020).

[25] Available at https://www.gao.gov/assets/670/666252.pdf.

[26] *See Older People Account for Large Shares of Poll Workers and Voters in U.S. General Elections*, Pew Research Center (Apr. 6, 2020), https://www.pewresearch.org/fact-tank/2020/04/06/older-people-account-for-large-shares-of-poll-workers-and-voters-in-u-s-general-elections; *see also KCMO Election Board Loses Poll Workers Ahead of Primary*, KSHB Kansas City (Mar. 9, 2020), https://www.kshb.com/news/local-news/kcmo-election-board-loses-poll-workers-ahead-of-primary (quoting estimate that significant portion of Kansas City poll workers are older and may fear COVID-19).

[27] Available at https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm.

B. Mitigation Measures Could Not Fully Prevent COVID-19 Spread at Polling Locations.

The CDC and several states have recognized these risks and issued guidance for reducing transmission risk. *See, e.g.*, CDC, *Recommendations for Election Polling Locations* (Mar. 27, 2020).[28] But given the inherent transmission risks posed by polling locations, it is unlikely that mitigation measures, alone or in combination, would be completely effective in preventing spread at polling locations.

As an initial matter, it is not possible to prevent spread at polling locations by providing alternatives to in-person voting only for persons confirmed to be infected. Given the limitations on testing capacity discussed *supra* pp. 11-12, voters generally will not be able to undergo testing and receive results in advance of the deadlines for requesting absentee ballots or in advance of the primary or general elections. And even if testing were far more widely available, and all symptomatic voters were to be tested, there would remain a high risk that an asymptomatic—but still contagious, *supra* pp. 7-8—voter would transmit the virus to others at the polls, either through close contact or by contaminating commonly used surfaces. Moreover, given that the last day for requesting an absentee ballot by mail is the second Wednesday prior to any election,[29] it is

[28] Available at https://www.cdc.gov/coronavirus/2019-ncov/community/election-polling-locations.html.

[29] Missouri Secretary of State's Office, *How to Vote: Absentee Voting*, https://www.sos.mo.gov/elections/goVoteMissouri/howtovote#absentee (accessed June 8, 2020).

impossible for a voter to know by that date whether he or she will receive a positive diagnosis in the *thirteen days* between that deadline and the election.

Face masks can generally help reduce the risk of spread, but the efficiency of masks in preventing person-to-person transmission varies widely based on the material with which the masks are made. Medical-grade N95 masks, unavailable to the general population, can, if properly fitted and worn, prevent spread with a high degree of confidence. *See* CDC, *Strategies to Optimize the Supply of PPE and Equipment*.[30] But N95 masks are in short supply and should be reserved for healthcare workers, and even if more widely available would be difficult for the general public to have properly fit tested and tolerated at the required level of tightness. *Id.* By comparison, cotton masks can allow in more than half the number of droplets filtered by N95 masks. Voters, therefore, may show up at polling locations with varying levels of protection.

Frequent cleaning of surfaces is an important mitigation measure, but cannot fully eliminate the risk of transmission via surfaces, especially in a highly trafficked area such as a polling location. Recognizing the risks posed by common surfaces, CDC guidance for polling places emphasizes cleaning practices. *See* CDC, *Recommendations for Election Polling Locations, supra* n.28. But the effectiveness of cleaning and disinfecting surfaces depends on frequency, and especially in a polling location with a large number of voters passing through, it is likely that surfaces may be touched by a

[30] Available at https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html (accessed June 8, 2020).

large number of individuals between rounds of cleaning and disinfecting. The leading voting machine vendors have also issued guidance, related to cleaning their machines, that demonstrates the difficulties and potential unintended consequences of this mitigation measure in the voting context. *See* U.S. Election Assistance Commission, *Vendor and Manufacturer Guidance on Cleaning Voter Machines and Other Technology*.[31] Their guidance warns against inadvertently disturbing the machines' programming while wiping the surfaces, notes the need to power down machines before wiping them down, and advises that certain cleaning products might cause the machines to malfunction. *See id*. The difficulty of taking proper cleaning precautions is likely either to lead some poll workers to forgo proper cleaning or to exacerbate crowding and group exposure at polling sites resulting from malfunctioning machines.

While these and other mitigation measures may reduce the risk of transmission at polling locations, they should be considered as complementing, rather than substituting for, providing voters the option of voting absentee. Indeed, the CDC guidance begins by urging election officials to "[e]ncourage mail-in methods of voting." CDC, *Recommendations for Election Polling Locations*, *supra* n.28. Given the transmission risks inherent to polling locations and the limitations of possible mitigation strategies, voters have a strong basis for isolating at home on election days to avoid contracting, or unknowingly spreading, the virus.

[31] Available at https://www.eac.gov/election-officials/vendor-and-manufacturer-guidance-cleaning-voting-machines-and-other-election (accessed June 8, 2020).

C. Recent Elections Illustrate the Risks of Transmission at Polling Places.

The experiences of poll workers and voters in the handful of states that forged ahead with their primaries in recent months present cautionary tales for in-person voting in Missouri. The lack of adequate testing and contact tracing has prevented some of these states from definitively establishing the extent of virus transmission at polling locations, but the number of positive cases confirmed among poll workers and voters illustrates the risks that Missourians would have to take by entering a polling location.

In Wisconsin, which held an election on April 7, researchers have found that in-person voting rates are correlated with higher numbers of confirmed cases of COVID-19, and that absentee voting rates are correlated with fewer confirmed cases. *See* Cotti et al., *The Relationship Between In-Person Voting, Consolidated Polling Locations, and Absentee Voting: Evidence from the Wisconsin Primary* 10, Nat'l Bureau of Econ. Research (May 2020) ("[A] 10% difference in in-person voters per polling location between counties is associated with approximately a 14% to 20% increase in the positive test rate.").[32] While exact numbers of confirmed cases are difficult to ascertain given the lack of testing, 67 voters and poll workers in Wisconsin tested positive for COVID-19 after visiting a polling place, and public health officials have concluded that at least some individuals contracted COVID-19 via in-person voting. *See* Wahlberg, *67 Got COVID-19 After Visiting Polls in State's April 7 Election but Tie to Voting Unclear*, Wis. St. J.

[32] Available at https://www.nber.org/papers/w27187.pdf.

(May 8, 2020)[33]; Corasaniti & Epstein, *At Least 7 in Wisconsin Got Coronavirus During Voting, Officials Say*, N.Y. Times (May 13, 2020).[34]

Likewise, in the days after Florida's March 17 primary, two poll workers tested positive for COVID-19, one of whom had election day responsibilities that entailed handling the ID cards of some of the 61 people who voted at that location. *See* Man, *Two Broward Poll Workers, Including One Who Handled Voters' Driver Licenses, Test Positive for Coronavirus*, South Fla. Sun Sentinel (Mar. 26, 2020).[35] Finally, in Chicago, a poll worker stationed at a voting site during the March 17 primary died from the coronavirus just two weeks—the incubation period for the coronavirus—after the election. The Chicago Board of Elections subsequently sent a letter to all poll workers and voters who visited the location, which read: "Although the Board took every precaution possible by supplying poll workers with hand sanitizers, gloves and instructions for wiping down the equipment, the fact remains that you and an individual who has now tested positive voted at the same Polling Place[.]" Brown & Sfondeles, *South Side Man Died of COVID-19 Two Weeks After Serving as Election Judge*, Chi. Sun

---

[33] Available at https://madison.com/wsj/news/local/health-med-fit/67-got-covid-19-after-visiting-polls-in-states-april-7-election-but-tie-to/article_49a42a7e-45d8-50cc-bd76-3a583842de39.html.

[34] Available at https://www.nytimes.com/2020/04/21/us/politics/wisconsin-election-coronavirus-cases.html.

[35] Available at https://www.sun-sentinel.com/coronavirus/fl-ne-broward-elections-poll-workers-coronavirus-20200326-wmgy775dvjc5jis2oagxlpmule-story.html.

Times (Apr. 13, 2020).[36] Similar letters were sent to residents who visited three other polling locations in Chicago. *Id.*

D. These Risks Will Be Present for the Missouri Elections at Issue in this Litigation.

The risks discussed above will be present through at least the August primary election and the November general election at issue in this litigation. Reliable prevention can only be expected once a proper vaccine has been tested, produced, distributed, and administered at scale, which will likely take at least another 12 to 18 months. *Supra* p. 12. Likewise, because herd immunity will not develop until a vaccine has been created or a substantial portion of the population has been infected and rendered immune, COVID-19 will likely continue to be a threat through the general election. Some have speculated that virus transmission and prevalence may wane over the summer months, but it is not yet known whether this virus will exhibit such a tendency; in any event, even if there proves to be some decline in the warmer months, there would likely be a resurgence in the fall, amidst the November general election. *See* Lipsitch, *Seasonality of SARS-CoV-2: Will COVID-19 Go Away on Its Own in Warmer Weather?, Center for Communicable Disease Dynamics*, Harv. T.H. Chan Sch, Pub. Health;[37] Kissler et al.,

---

[36] Available at https://chicago.suntimes.com/politics/2020/4/13/21219934/illinois-election-day-judge-poll-worker-death-covid-19-primary-coronvirus-burke-pritzker.

[37] Available at https://ccdd.hsph.harvard.edu/will-covid-19-go-away-on-its-own-in-warmer-weather (accessed June 8, 2020).

Projecting the Transmission Dynamics of SARS-CoV-2 Through the Postpandemic Period, 368 Sci. 860, 860-868 (May 22, 2020).[38]

Accordingly, giving voters the option of voting absentee would make the upcoming elections significantly safer, both for the voters who choose to vote absentee and for the poll workers and in-person voters whose polling locations will be less crowded as a result of absentee voting.

III. Requiring Voters to Have Absentee Ballots Notarized Poses Similar Risks.

For the reasons explained above, during the present pandemic giving voters the option of voting absentee is significantly safer than requiring in-person voting. Absentee voters can avoid being in proximity to others whom they might infect or be infected by, and the virus is unlikely to be spread by mail. *See* CDC, *Frequently Asked Questions: How to Protect Yourself*.[39] But this benefit is substantially undermined if voters are required to meet with others in order to vote absentee. Requirements that absentee (or mail-in) ballots be notarized—which remain in effect for many voters under legislation recently signed by the Governor—would force voters to face risks similar to those they would face if voting in person.

The recently signed legislation, Senate Bill 631, allows voters in certain narrowly defined "at-risk categor[ies]" to cast absentee ballots without notarization, but most voters are required either to have a mail-in ballot notarized or to vote in person. *See*

---

[38] Available at https://science.sciencemag.org/content/368/6493/860.

[39] Available at https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html (accessed June 8, 2020).

A048; Missouri Governor Michael L. Parson, Press Release (June 4, 2020).[40] Under the bill, "at-risk categor[ies]" are limited to voters who (1) are over the age of 65, (2) live in a long-term care facility, (3) have chronic lung disease or moderate-to-severe asthma, (4) have serious heart conditions, (5) are immunocompromised, (6) have diabetes, (7) have chronic kidney disease and are undergoing dialysis, or (8) have liver disease. A055. As discussed *supra* pp. 9-10, all people are at risk of contracting severe cases of COVID-19. Specific medical conditions associated with higher risk—including obesity, *supra* pp. 9-10—are not covered by this bill. And while it is not yet fully understood which populations are at the greatest risk, racial and ethnic minority populations, especially African Americans, have been found to be at substantially elevated risk of developing severe cases. *Supra* pp. 9-10.

Notarization requirements pose risks because few voters live with a person who can notarize their ballot. These individuals will be forced to meet with others from outside their household in order to obtain notarization. As discussed above, the virus is spread primarily through close contact with other people and contaminated surfaces. Accordingly, the notarization requirement forces a voter to abstain from voting, to vote in-person, or to meet one-on-one with another individual whom they may infect or by whom they may be infected. It further places notaries—who may not have proper personal protective equipment or training in proper measures for reducing the risk of

---

[40] Available at https://governor.mo.gov/press-releases/archive/governor-parson-takes-security-measures-safeguard-election-process-protect.

spread—in the position of meeting with numerous voters from whom they may contract the virus or to whom they may spread it. Beyond presenting risks to each other, the two parties involved can also go on to transmit the virus to others, especially if, as is likely, the same person notarizes the ballots of several absentee voters.

CONCLUSION

COVID-19 and the virus that causes it pose unique risks that are particularly acute at polling locations. In light of these risks, voters have strong reasons to self-isolate and avoid the risks of spreading or catching the virus by voting in person. Allowing voting by absentee ballot without notarization would be a much safer option for public health than forcing voters to either forego their right to vote or to risk their—and the public's—health by voting in person.

Dated: June 8, 2020

Respectfully submitted,

/s/ Michael A. Wolff
Michael A. Wolff, #27633
ST. LOUIS UNIVERSITY SCHOOL OF LAW LEGAL CLINICS
100 N. Tucker Blvd.
St. Louis, MO 63101
Telephone: (314) 691-4377
mike@mikewolff-law.com

Debo P. Adegbile
WILMER CUTLER PICKERING HALE AND DORR LLP
7 World Trade Center
250 Greenwich Street
New York, NY 10007
(212) 230-8800
debo.adegbile@wilmerhale.com

Attorneys for Amici Curiae

CERTIFICATE OF COMPLIANCE

I hereby certify, pursuant to Supreme Court Rule 84.06(c), that this brief includes the information required by Rule 55.03, was served through the Court's electronic filing system in compliance with Rule 103.08, and complies with the limitations contained in Rule 84.06(b). I further certify that this brief contains 6,231 words, excluding the cover page, certificates required by Rule 84.06(c), and signature block as directed by Rule 84.06(c), as determined by the Microsoft Word 2010 word-counting system.

/s/ Michael A. Wolff

CERTIFICATE OF SERVICE

I hereby certify that on June 8, 2020, I electronically filed the foregoing brief with the Clerk of the Court using the Court's electronic filing system, which will send a notice of electronic filing to all counsel of record.

/s/ Michael A. Wolff

APPENDIX A

AMICI CURIAE

Dr. Hilary M. Babcock, MD, MPH, is Medical Director of the BJC Infection Prevention and Epidemiology Consortium, and Medical Director of Occupational Health (Infectious Disease) for Barnes-Jewish and St. Louis Children's Hospitals. In all of these roles, she provides medical direction for policies and procedures in place at BJC hospitals to prevent transmission of infections among patients and between patients and healthcare providers. Dr. Babcock develops responses to emerging and resurgent infectious threats in healthcare settings. She also provides consultation on occupational health policies and procedures for Barnes-Jewish and St. Louis Children's Hospitals, and counseling to healthcare workers regarding vaccinations, and regarding prevention and management of exposures to potentially contagious diseases in the course of their work. She is also a Professor of Medicine in Infectious Diseases at Washington University School of Medicine. She teaches medical students, residents, and infectious disease fellows through coursework, didactic lecture series, and clinical experiences. Dr. Babcock's two main areas of interest are infection prevention and occupational health, specifically related to healthcare workers. She has studied needlestick injury rates and preventive measures among healthcare workers, prevention of ventilator-associated complications in ICU patients, healthcare associated infection surveillance strategies, and the clinical presentation of influenza among hospitalized patients, to better define clinical criteria for screening and isolation. Dr. Babcock is the immediate past president of the Society for Healthcare Epidemiology of America and current co-chair of the CDC's Healthcare Infection Control Practices Advisory Committee.

Dr. Victoria J. Fraser, MD, is the Adolphus Busch Professor of Medicine, chair of the Department of Medicine at Washington University School of Medicine, and physician-in-chief for Barnes-Jewish Hospital. She is also the director of the Clinical Research Training Center at Washington University and co-principal investigator of the university's Institute of Clinical and Translational Science. Dr Fraser is an expert in infectious disease, antibiotic resistance, and epidemiology. Her research is focused on preventing and controlling hospital-acquired infections, antibiotic resistance and preventing infectious diseases in health care workers and the community. Dr. Fraser has extensive experience identifying risk factors for infections, determining infectious morbidity, mortality and costs, and applying interventions in real-world settings to successfully reduce infections in hospitals and the community. Her research is funded by the Centers for Disease Control and Prevention and the National Institutes of Health. She is the principal investigator of a CDC Prevention Epicenters Program grant. She is the past President of the Society of Healthcare Epidemiology of America (SHEA) and a board member of the Infectious Disease Society of America (IDSA). She has received numerous awards for her research in infectious disease and epidemiology, including the SHEA Lectureship, the SHEA Investigator Award, the IDSA Maxwell Finland Lecturer, the Washington University in St. Louis Distinguished Faculty Award, the University of Missouri-Columbia School of Medicine Alumni Citation of Merit Award, and the Human

Rights Campaign Foundation Ally for Equality Award. She is a Fellow in the American Association for the Advancement of Science and Master of the American College of Physicians. Dr. Fraser received her doctorate in medicine from the University of Missouri and was an internal medicine resident and chief resident at the University of Colorado. She completed a fellowship in Infectious Diseases at Washington University School of Medicine and Barnes-Jewish Hospital.

Dr. Elvin Geng, MD, MPH, is a Professor in the Washington University School of Medicine in the Division of Infectious Diseases. Dr. Geng earned MD and MPH degrees from Columbia University and subsequently completed post-doctoral training through the Aaron Diamond AIDS Institute (posted in Kunming, China) as well as fellowship training in infectious diseases at the University of California in San Francisco. From 2009 to 2019, he was a faculty member in the Department of Medicine, Division of HIV/AIDS, Infectious Diseases and Global Medicine at University of California at San Francisco, where he was most recently an Associate Professor of Medicine. Using the lens of implementation science, he conducts research to optimize the use of evidence-based interventions in the public health response to human immunodeficiency virus (HIV) infection. His work has been sponsored by the Bill and Melinda Gates Foundation and the National Institutes of Health. He serves in an advisory capacity for the World Health Organization, non-governmental organizations, and professional organizations. He is the author of over 125 peer-reviewed papers and is an academic editor at PLOS Medicine, a member of the editorial board of the Journal of the Acquired Immunodeficiency Syndrome and editor for implementation science at Current HIV/AIDS Reports.

Professor Kimberly Johnson, MPH, PhD, is an epidemiologist with over a decade of experience teaching epidemiology and conducting research on both chronic and infectious diseases (HIV and recently corona virus). Her experience includes designing and managing projects, collecting and organizing data, conducting analyses using a number of different statistical tools, supervising staff, and mentoring students/trainees across levels (undergraduate, masters-level, PhD, MD and residents) from project conception to completion. Her recent experience and ongoing work with regard to Corona virus involves working on a large team multi-university and community collaborative team to design studies and survey instruments to understand risk factors for infection in Missouri. In addition, she has been appointed as a result of her expertise to a committee at her University to develop safety protocols for events on campus during the fall 2020 semester. Johnson is a member of the Institute for Public Health, Siteman Cancer Center and the American Association for Cancer Research. She has a secondary appointment in the Department of Pediatrics at the Washington University School of Medicine. Johnson teaches Foundations in Public Health: Epidemiology and Advanced Data Analysis and is the co-chair of the Epidemiology and Biostatistics specialization in the Brown School's Master of Public Health program.

Dr. Megha Mehrotra, PhD, MPH, is a postdoctoral scholar in Epidemiology and Biostatistics at UC Berkeley's School of Public Health and is currently volunteering for the California Department of Public Health COVID-19 response. Her research is on developing and applying causal inference methods for improving implementation of HIV prevention strategies. Dr. Mehrotra received her PhD in Epidemiology and Translational Science from the University of California, San Francisco in 2019. Her dissertation was entitled "From Trials to Public Health Impact: Transportability of Causal Effects to Inform Implementation of HIV Pre-exposure Prophylaxis." She has over 10 years of experience working in HIV prevention research.

Dr. Aaloke Mody, MD, is an Instructor in the Washington University School of Medicine in the Division of Infectious Diseases. Dr. Mody completed his infectious diseases fellowship in the Division of HIV, ID, and Global Medicine at UCSF. He completed his undergraduate training at UC Berkeley and then went to Duke University for medical school where he spent his third year conducting HIV and malnutrition research in Kampala, Uganda. He then completed his internal medicine residency at the Hospital of the University of Pennsylvania in Philadelphia, PA in their Global Health Track where he spent 3 months providing clinical care at Princess Marina Hospital in Gaborone, Botswana. Dr. Mody then came to the University of California San Francisco in 2015 to complete his infectious diseases fellowship. While at UCSF, he completed research based out of Lusaka, Zambia at the Centre for Infectious Disease Research in Zambia (CIDRZ), a nongovernmental organization that supports over 300 Ministry of Health-run clinics across two provinces in Zambia. He also completed his HIV continuity clinic at the Advanced Infectious Disease Center in Lusaka, Zambia, the only clinic that provides third-line ART regimens in Zambia. Dr. Mody's overall interest is in utilizing interdisciplinary implementation science research to understand how public health systems can be optimized to deliver high-quality and patient-centered HIV care in resource-limited settings.

Professor Arthur L. Reingold, MD, is Division Head of Epidemiology and Biostatistics at the University of California, Berkeley, School of Public Health. Professor Reingold has worked for over forty years on the prevention and control of infectious diseases both at the national level, including eight years at the U.S. Centers for Disease Control and Prevention, as well as with numerous developing countries around the world. He has directed or co-directed the CDC-funded California Emerging Infections Program since its inception in 1994. His research interests include vaccine-preventable diseases, respiratory infections including influenza, bacterial meningitis, disease surveillance, and outbreak detection and response. He has published over 350 original research papers on these subjects and teaches a wide variety of courses on related topics at the University of California, Berkeley and at numerous other universities around the world. Among other honors, he was elected to the Institute of Medicine of the National Academy of Sciences in 2003.

Dr. Sahar Saeed, PhD, MSc, is an epidemiologist and post-doctoral scholar at Washington University in St. Louis. Over the past 15 years, she has developed specialized knowledge and methodological expertise studying inequities among people living with HIV. Dr. Saeed has successfully led and collaborated in research programs in the therapeutic areas of infectious diseases (predominately HIV, viral hepatitis and most recently, COVID-19), neonatology, and hepatology. While completing her doctoral studies at the Department of Epidemiology and Biostatistics at McGill University, she uncovered barriers to accessing hepatitis C treatments among people co-infected with HIV. At Washington University, she continues to bridge the gaps in the local and global response to HIV, by employing machine-learning methods to characterize psycho-social syndemics and how they relate to disengagement from HIV care in the United States and Zambia. Concerning COVID-19, she has volunteered for the Emergency Task Force to combat COVID-19 in long-term care facilities, for the Government of Quebec. She is currently evaluating how changes in mobility impact rates of transmission in the USA. She has published a total of 34 peer-reviewed articles and received 19 competitive fellowships and prizes, including from the Canadian Institutes of Health Research (CIHR).

Dr. Enbal Shacham, PhD, has been intersecting epidemiological, health behaviors and outcome and geospatial research throughout her career. She is a professor of public health at the Saint Louis University College for Public Health and Social Justice. Her research focuses on infectious and chronic disease prevention and management by leveraging how location impacts health outcomes. As the Director for the Health Lab at the Geospatial Institute at Saint Louis University, she conducts research and trains professionals on how location impacts health behaviors and conditions. Her previous work has included a large focus on HIV, sexually transmitted infections, and Zika. In relation to COVID-19, her research focuses on how location and community interactions influence transmission risk. Further, she leverages data and technology from the smart watch to the satellite image to more comprehensively respond to health challenges. Dr. Shacham also has extensive research and practice experience working in community and clinic settings to improve health outcomes, particularly in vulnerable communities.

Dr. Gregory A. Storch, MD, is the Ruth L. Siteman Professor of Pediatrics and Professor of Medicine and of Molecular Microbiology at Washington University School of Medicine and past chief of the Divisions of Pediatric Infectious Diseases and Pediatric Laboratory Medicine. He received his AB degree from Harvard College and his MD from NYU School of Medicine. He completed internship and residency in internal medicine at the Jewish Hospital of St. Louis, was an Epidemic Intelligence Service Officer for the Centers for Disease Control in the Louisiana Department of Health in New Orleans, and an infectious disease fellow at Washington University. He joined the Washington University faculty in 1981. He is the co-Medical Director of Project ARK, a pediatric HIV service organization affiliated with the Washington University Department of Pediatrics. Dr. Storch is past president of the Pan-American Society for Clinical Virology. He currently serves as Chair of the Finance Committee of the Pediatric Infectious Diseases Society. He is also an Associate Editor of the Journal of the Pediatric Infectious Diseases Society. Dr. Storch's research interests are in molecular diagnosis of infectious diseases and infectious disease genomics. He currently serves as Research Integrity Officer for Washington University.

Dr. David K. Warren, MD, MPH, is a Professor of Medicine in the Washington University School of Medicine in the Division of Infectious Diseases. Dr. Warren currently serves as the Hospital Epidemiologist for Barnes-Jewish Hospital and Medical Director for Infection Prevention for the Washington University School of Medicine (WUSM). As such, he oversees surveillance and intervention programs to prevent healthcare-associated infections at Barnes-Jewish Hospital, hospital-affiliated outpatient clinics and surgical centers, and the WUSM Clinic system, with over 100 clinics that provide 130,000 outpatient encounters monthly. He is also the director of the Clinical Research Training Center and the Masters of Science in Clinical Investigation at Washington University. His research interests center around the epidemiology and prevention of healthcare-associated infections, by developing methods to prevent the spread of antimicrobial-resistant bacteria among hospitalized patients. Dr. Warren's clinical interests include staphylococcal infections, orthopedic infections, medical device-related infections and general infectious diseases.