STATE OF MICHIGAN
IN THE SUPREME COURT

In re CERTIFIED QUESTIONS FROM THE UNITED STATES DISTRICT COURT, WESTERN DISTRICT OF MICHIGAN, SOUTHERN DIVISION	Supreme Court No. 161492 USDC-WD No. 1:20-cv-414
MIDWEST INSTITUTE OF HEALTH, PLLC, d/b/a GRAND HEALTH PARTNERS, WELLSTON MEDIA CENTER, PLLC, PRIMARY HEALTH SERVICES, PC, and JEFFERY GULICK, *Plaintiffs*, v GOVERNOR OF MICHIGAN, MICHIGAN ATTORNEY GENERAL, and MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES DIRECTOR, *Defendants*.	**The appeal involves a question that a provision of the Constitution, a statute, rule or regulation, or other State governmental action is invalid.**

BRIEF OF *AMICI CURIAE* MICHIGAN EPIDEMIOLOGISTS IN SUPPORT OF DEFENDANTS GOVERNOR OF MICHIGAN AND MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES DIRECTOR

ORAL ARGUMENT NOT REQUESTED

Jennifer L. McManus (P65976)
FAGAN MCMANUS, P.C.
25892 Woodard Avenue
Royal Oak, MI 48067-0910
Telephone: (248) 542-6300
Facsimile: (248) 542-6301
jmcmanus@faganlawpc.com

Joshua Matz (*PHV motion pending*)
Raymond P. Tolentino (*PHV motion pending*)
Jonathan R. Kay (*PHV motion pending*)
Mahrah M. Taufique (*PHV motion pending*)
KAPLAN HECKER & FINK LLP
350 Fifth Avenue, Suite 7110
New York, New York 10118
Telephone: (212) 763-0883
Facsimile: (212) 564-0883
jmatz@kaplanhecker.com
rtolentino@kaplanhecker.com
jkay@kaplanhecker.com
mtaufique@kaplanhecker.com

Attorneys for Amici Curiae

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STATEMENT OF QUESTIONS PRESENTED

Amici Curiae Michigan Epidemiologists adopt the Statement of Questions Presented contained in the brief of Defendants Governor of Michigan and Michigan Department of Health and Human Services Director.

STATEMENT OF FACTS AND PROCEEDINGS

Amici Curiae Michigan Epidemiologists adopt the Statement of Facts and Proceedings contained in the brief of Defendants Governor of Michigan and Michigan Department of Health and Human Services Director.

IDENTITY AND INTEREST OF *AMICI CURIAE*

Amici are renowned epidemiologists and public health scholars with professional expertise on the transmission of infectious diseases in Michigan. They include physicians practicing in Michigan health care systems and professors at Michigan universities. They have served public health agencies at the local, state, and federal levels, in Republican and Democratic administrations alike. They have a strong interest in containing COVID-19 and reducing further community spread in this state. They submit this brief to offer the Court their scientific assessment of the Executive Orders that Governor Gretchen Whitmer issued in response to the current public health crisis in Michigan, and in support of in the brief of Defendants Governor of Michigan and Michigan Department of Health and Human Services Director, addressing the questions certified to this Court.

A full list of *amici* is attached as an appendix to this brief.[1]

[1] Pursuant to M.C.R. 7.312(H), *amici* state that this brief was not authored by counsel representing a party in this case in whole or in part, nor did such counsel or a party make a monetary contribution intended to fund the preparation or submission of this brief. Other than *amici curiae* and their counsel, no person made a monetary contribution to assist in preparation of this brief. The positions of *amici* presented in this brief are theirs alone. *Amici* do not purport to speak on behalf of their employers or any other organization or society with whom they are affiliated.

INTRODUCTION AND SUMMARY OF ARGUMENT

Since March 10, 2020—merely five months ago—Michigan has seen confirmed cases of COVID-19 go from 1 to almost 87,000. To date, 6,520 people have died in Michigan, making it the eighth highest state in the nation for COVID-19 death rates. The COVID-19 outbreak presents a continuing, life-threatening emergency across the state. And the Governor's emergency measures—including EO 2020-17, EO 2020-67, EO 2020-68, EO 2020-77, EO 2020-114, and EO 2020-161—have already saved thousands of lives. Disease modeling reveals that approximately 28,000 more cases across the state would likely have occurred before June 1, 2020 if those measures had not been implemented, resulting in approximately 3,500 lives saved. Were this Court to abruptly invalidate all of the Governor's emergency measures, including those focused on social distancing and the safety of hospital and medical care facilities, the result might well be a resurgence of COVID-19, with peak disease rates potentially nearing or exceeding those experienced in the current outbreak. The Court can and should consider all of this in assessing the scope of the Governor's authority and the legality of the Governor's Executive Orders, and in determining how to resolve the questions certified by the United States District Court for the Western District of Michigan.

Amici do not purport to be experts in statutory or constitutional law. Nor are they political strategists with a political agenda. They are scientists who have devoted their professional lives to understanding the evolution and spread of infectious diseases and improving public health disaster preparedness. Like many families in Michigan, *amici* appreciate the devastating toll that certain emergency measures may have on Michigan's economy. But their epidemiological expertise makes one thing clear: swift, forceful, and nimble emergency government action based

on high-quality data is the only defense that Michigan currently has against COVID-19. Lives will be lost if that shield is cast aside.

ARGUMENT

I. THE COURT SHOULD CONSIDER THE CONTEXT OF THE COVID-19 THREAT WHEN EVALUATING THE CERTIFIED QUESTIONS

Amici present a scientific perspective so that this Court may interpret the scope and constitutionality of the 1945 Emergency Powers of the Governor Act ("EPGA") and the 1976 Emergency Management Act ("EMA") within the broader context of the threat that COVID-19 poses to Michigan. Courts "do not exist in a vacuum," and "may take cognizance of facts and events surrounding the . . . purpose of legislation." *Wayne Co Republican Comm v Wayne Co Bd of Comm'rs*, 70 Mich App 620, 625; 247 NW2d 571, 573 (1976). Courts may also consider policy implications when construing a statute. *See Walsh v City of River Rouge*, 385 Mich 623, 634-35; 189 NW2d 318, 324 (1971) ("It is against this background of . . . policy considerations that we must resolve the legal question as to whether [the EPGA] embodies a legislative intent to lodge exclusive powers in the Governor."). Indeed, "[s]tatutes should be construed so as to prevent . . . prejudice to the public interest." *McAuley v Gen Motors Corp*, 457 Mich 513, 518; 578 NW2d 282, 285 (1998) (citing *Franges v General Motors Corp*, 404 Mich 590, 612; 274 NW2d 392 (1979)).

The EPGA and the EMA grant the Governor broad authority to respond to public crises, disasters, and emergencies. MCL 10.32; 30.417(d). With over 6,500 Michiganders dead from COVID-19 since the virus was first detected in our state in March 2020, we can think of no greater crisis facing Michigan in recent history than COVID-19 and the threat it poses to health and safety. "At this time, there is no known cure, no effective treatment, and no vaccine. Because people may be infected but asymptomatic, they may unwittingly infect others." *South Bay United Pentecostal*

Church v Newsom, 140 S Ct 1613, 1613 (2020) (ROBERTS, C.J., concurring). Recently, the Court of Claims properly reasoned that the EMA and the EPGA *compelled* the Governor to take emergency action in those circumstances. *See Mich House of Representatives v Governor Gretchen Whitmer*, 2020 WL 3979949, at *5 (Mich Ct Cl May 21, 2020) ("The Governor's challenged actions—declaring states of disaster and emergency during a worldwide public health crisis—are required by the very statutes the Legislature drafted.").

As Chief Justice John G. Roberts, Jr. has observed, "The precise question of when restrictions on particular social activities should be lifted during the pandemic is a dynamic and fact-intensive matter subject to reasonable disagreement." *South Bay United Pentecostal Church*, 140 S Ct 1613, 1613 (2020) (ROBERTS, C.J., concurring). Under Michigan law, the Governor has the right to make tough judgments—based in scientific fact—about how best to respond to a deadly pandemic. Accordingly, the Court can and should consider *amici*'s scientific assessment in this case.

II. COVID-19 POSES A DIRE THREAT TO THE HEALTH AND SAFETY OF MICHIGAN RESIDENTS

A. COVID-19 Is Deadly and Highly Infectious

The novel coronavirus, SARS-CoV-2, is causing a new and complex illness in humans that is not yet fully understood from a virology, epidemiological, or medical perspective. What is known, however, is that this virus has attributes that make it extremely challenging to contain and control. The novel coronavirus appears to spread much more easily in crowded spaces—especially indoors.[2] In addition, during the virus' incubation period, many individuals are infectious but do

[2] Advisory Board, *Are Outdoor Gatherings Safe? Here is What Experts Say* <https://www.advisory.com/daily-briefing/2020/07/17/outdoor-gathering> (accessed August 12, 2020).

not experience any symptoms. More challenging still, approximately 30% of people with COVID-19 never experience any symptoms and unwittingly transmit the virus to others in their families, worksites, social circles and communities.[3]

Only a small proportion of people who get COVID-19 will experience serious illness, hospitalization, or death. But the percentage of deaths among known COVID-19 cases—currently about 7.5% in Michigan—suggests a higher case-fatality rate than for many other infectious diseases.[4] And even among those who survive COVID-19, emergent clinical evidence suggests that many people are experiencing ongoing respiratory, vascular, and gastrointestinal effects over an extended period.[5] The scientific community continues to gather and analyze data regarding higher-risk populations and communities, but it remains the case that both the geographic patterning and the clinical course of this new disease are not predictable. For example, while available scientific evidence suggests that individuals older than 65 are considered high risk for respiratory infections caused by COVID-19, the virus has also had significant health effects on children and adults of all ages. To date, approximately 70% of cases in Michigan have been individuals under the age of 60.

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[3] He et al, *Temporal Dynamics in Viral Shedding and Transmissibility of COVID-19*, Nature, p 672-75 <https://www.nature.com/articles/s41591-020-0869-5> (accessed August 12, 2020); McIntosh, *Coronavirus Disease 2019 (COVID-19): Epidemiology, Virology, Diagnosis, and Prevention* <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-epidemiology-virology-clinical-features-diagnosis-and-prevention> (accessed August 12, 2020).

[4] *Coronavirus, Michigan Data* <https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173---,00.html> (accessed August 8, 2020).

[5] Chan et al, *Acute Kidney Injury in Hospitalized Patients with COVID-19* <https://www.medrxiv.org/content/10.1101/2020.05.04.20090944v1> (accessed August 12, 2020); Lois Parshley, *The Emerging Long-Term Complications of Covid-19, Explained*, Vox <https://www.vox.com/2020/5/8/21251899/ coronavirus-long-term-effects-symptoms> (accessed August 12, 2020); Wang et al, *Temporal Changes of CT Findings in 90 Patients with COVID-19 Pneumonia: A Longitudinal Study*, Radiology <https://doi.org/10.1148/radiol.2020200843> (accessed August 12, 2020).

Given the characteristics of this novel virus, we face an unprecedented emergency in which every single Michigander—all 10 million people living in all 83 counties—remains at risk of contracting and spreading COVID-19. There is no way to predict exposure, infection, transmission, or severity of illness once infected. All communities in Michigan remain vulnerable to this devastating, deadly disease.

B. COVID-19 HAS RAVAGED THE STATE OF MICHIGAN, INFECTING OVER 86,800 MICHIGANDERS AND KILLING OVER 6,500

Michigan has endured a rapid expansion of confirmed COVID-19 cases, reaching high levels of community spread within a matter of days. The first case of COVID-19 in Michigan was reported on March 10, 2020. Each day in the weeks thereafter, over 100 new cases were diagnosed in southeast Michigan. By March 15, 2020, infections were found in every public health region in the state. In late March and early April 2020, the epidemic grew and remained uncontained. By April 4, 2020, Michigan was experiencing 42 hospitalizations per 100,000 residents, over twice the rates seen in other states, including New York and Tennessee.[6] And by May 10, 2020, just two months after the first reported case, Michigan continued to outpace many other states, with nearly 48,000 reported cases and over 4,500 deaths.[7] Official data regarding the daily number of new COVID-19 diagnoses and deaths in Michigan reveal that the epidemiologic curve in Michigan did indeed start to flatten in April 2020, until early June 2020 when COVID-19 cases started to rise

[6] United States Centers for Disease Control and Prevention, *COVID-19 Hospitalizations* <https://gis.cdc.gov/grasp/covidnet/COVID19_3.html> (accessed August 12, 2020).

[7] Michigan State Government, *Coronavirus Michigan Data* <https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173---,00.html> (accessed August 8, 2020).

again.[8] Daily cases have been rising throughout the summer, especially among adults aged 20-40.[9]

To date, the death toll in Michigan has exceeded 6,500, and even that figure is likely an underestimate. In Detroit alone, 1,490 people have died. But COVID-19 is not just an urban concern: other areas of Michigan have likewise experienced extensive illness and death. Macomb and Oakland counties combined have had 2,000 deaths, and Genesee County has lost over 270 residents to COVID-19. To put those figures in perspective, COVID-19 will likely be the third leading cause of death among Michiganders in 2020, behind only heart disease and cancer. The total number of COVID-19 deaths in Michigan has already surpassed the annual number of deaths in 2018 caused by unintentional injuries and accidents (5,564), Alzheimer's disease (4,474), diabetes (2,824), influenza/pneumonia (1,871), suicide (1,547), and kidney disease (1,943).[10] Lurking behind those numbers is a troubling racial disparity. The current data indicate that the burden of illness and death fall disproportionately on communities of color, with Black residents accounting for 37% of COVID-related deaths, but only 14% of Michigan's population.[11]

Michigan was one of the first states to be hit hard by the new coronavirus. In April 2020, Michigan was eighth in the nation in confirmed COVID-19 cases and deaths, despite being the

[8] *Id.*

[9] Deaths from COVID-19 in Michigan have remained more stable during this time, likely because of: a) improvements in treatment; b) the shift towards younger ages in diagnosed cases; and, c) more vulnerable and at-risk individuals are staying home and following other public health measures. Even so, any rise in the incidence of COVID-19 is of concern to the broader community because of the potential for exponential growth.

[10] Michigan Department of Health and Human Services, *Michigan Cause of Death Information* <https://www.mdch.state.mi.us/pha/osr/deaths/causrankcnty.asp> (accessed August 8, 2020).

[11] Michigan State Government, *Coronavirus Michigan Data* <https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173---,00.html> (accessed August 8, 2020).

eleventh most populous state. Also in April 2020, Wayne County (Michigan's most populous county) ranked eleventh among most impacted counties in the country and fifth in the country in COVID-related deaths.[12]

III. THE GOVERNOR'S STATEWIDE EXECUTIVE ORDERS ARE SUPPORTED BY SCIENCE AND HAVE SAVED THOUSANDS OF LIVES

A. The Governor Has Used Scientifically Proven Methods to Combat the Spread of COVID-19

In a series of Executive Orders, Governor Gretchen Whitmer implemented a coordinated set of emergency public health interventions with a strong basis in epidemiological science. For example, Executive Order 2020-77 limited public gatherings, required non-essential workers to stay at home (subject to certain exceptions), closed non-essential physical business offices, required social distancing measures recommended by the CDC, and required face coverings for individuals walking in public. EO 2020-77(1)-(4); (15); *see also* EO 2020-69(1) (closing restaurants, bars, theaters, museums, and gymnasiums for immediate occupancy by the public); EO 2020-65 (closing K-12 schools for the remainder of the 2019-2020 school year); EO 2020-72 (temporarily restricting entry into health care facilities, residential care facilities, congregate care facilities, and juvenile justice facilities). For certain businesses and operations that remained open or reopened, such as construction, manufacturing, grocery, and pharmacy establishments, the Governor required establishments to provide handwashing and sanitizing stations for their employees, perform frequent cleaning and hygiene practices, allow for distance between employees, and limit overall entry and occupancy. EO 2020-77(10)-(11); *see also* EO 2020-71

[12] Johns Hopkins University Coronavirus Resource Center, *COVID-19 United States Cases by County* <https://coronavirus.jhu.edu/us-map> (accessed August 12, 2020).

(temporary safety measures for food-selling establishments and pharmacies); EO 2020-97 (safeguards and awareness plans to protect all Michigan workers who return to work).

Over time, the Governor has modified certain restrictions to meet the state's ever-changing needs. On March 21, 2020, to ensure the availability of health care resources for sick patients, to minimize physical interaction between individuals, and to address the shortage of personal protective equipment, available beds, personnel, ventilators, and necessary supplies, Governor Whitmer temporarily postponed medical and dental procedures "not necessary to address a medical emergency or to preserve the health and safety of a patient, as determined by a licensed medical provider." EO 2020-17. The Governor rescinded EO 2020-17 two months later, when the state's health care capacity improved. EO 2020-96.

As non-emergency health care treatments resumed, the Governor implemented workplace safety standards to safeguard the health of employees and their communities. EO 2020-97; EO 2020-114; EO 2020-145; EO 2020-161. Although EO 2020-114 has since been rescinded, the Governor has implemented two subsequent measures: EO 2020-145, issued on July 9, 2020, and EO 2020-161, which replaced EO 2020-145 on July 29, 2020. The workplace safety standards set forth in EO 2020-161 are substantially similar to those of its predecessor EO 2020-114, which the federal district court cited as "continuing to place restrictions on Plaintiffs' ability to operate." *Grand Health Partners v Whitmer*, 2020 WL 3248785, at *1 (WD Mich June 16, 2020).

EO 2020-161 stipulates that all in-person businesses take certain precautions to minimize the spread of the disease. For example, employers must provide non-medical grade face coverings to their employees, provide training regarding workplace infection control practices, and adopt protocols to clean and disinfect the facility in the event of a positive COVID-19 case. EO 2020-161(1). EO 2020-161 also contains industry-specific requirements to address the needs of different

workplaces. For example, outpatient health care facilities must, *inter alia*, limit waiting-area occupancy to allow for six feet of social distancing, enable contactless sign-in, add special hours for highly vulnerable patients, conduct common screening protocols and temperature checks, require employees to make proper use of personal protective equipment, encourage telehealth and telemedicine to the greatest extent possible, and limit the number of in-person appointments to maintain social distancing and allow adequate time between appointments for cleaning. EO 2020-161(9). Plaintiffs claim that the safety measures in place under EO 2020-161 continue to restrict their ability to provide medical services. *See* Pls.' Brief at 45. However, *amici* submit that these measures are necessary, reasonable, and specifically tailored to prevent the indoor transmission of COVID-19.

The emergency interventions employed by Governor Whitmer are generally referred to as infectious disease "non-pharmaceutical interventions"—*i.e.*, interventions aimed at populations (rather than medical interventions given to individuals). Non-pharmaceutical interventions are designed to prevent the further spread of an infectious disease by quickly reducing potential exposure to the virus through improved hygiene measures and by decreasing the amount and density of physical interaction between people.[13] The main purpose of these types of emergency public health measures is to quickly reduce the amount of physical interaction between people in order to abruptly reduce transmission and exponential growth of an infectious agent. Such interventions also seek to "flatten the curve" of the epidemic by reducing the peak and total number of cases and deaths when an outbreak hits a community or population.

[13] World Health Organization, *Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza* <https://extranet.who.int/sph/docs/file/3848> (accessed August 12, 2020).

According to the American Society for Microbiology, there is a long history and strong scientific basis for the use of social distancing and other types of emergency public health interventions in serious infectious disease epidemics.[14] Over the past century, interventions similar to those being used in Michigan have been implemented and studied as necessary frontline responses to infectious disease outbreaks across the globe.[15] An analysis of 17 cities during the 1918 influenza pandemic found that death rates were 50% lower in cities that implemented multiple social distancing measures such as school, church, and business closures, as compared to cities that did not implement such emergency measures.[16] Public hygiene measures—including requirements regarding surface cleaning in businesses and wearing face masks—are proven, indispensable tools in reducing community spread.[17] Similarly, closures of schools, facilities, and

[14] American Society for Microbiology, *The Science of Social Distancing* <https://asm.org/Articles/2020/April/The-Science-of-Social-Distancing> (accessed August 12, 2020).

[15] Aiello et al, *Research Findings from Nonpharmaceutical Intervention Studies for Pandemic Influenza and Current Gaps in the Research*, Am J Infection Control <https://www.ajicjournal.org/article/S0196-6553(10)00039-8/fulltext> (accessed August 12, 2020); Stein, *The 2019 Coronavirus: Learning Curves, Lessons, and the Weakest Link*, Intl J Clinical Practice <https://doi.org/10.1111/ijcp.13488> (accessed August 12, 2020) (surveying hygiene recommendations, social distancing practices, limitations on crowd sizes, school closures, workplace closures, and quarantine orders, among others, as effective tools for fighting pandemics).

[16] Hatchett, *Public Health Interventions and Epidemic Intensity During the 1918 Influenza Pandemic*, Proc Ntl Acad Sci <https://www.pnas.org/content/104/18/7582> (accessed August 12, 2020).

[17] World Health Organization, *Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza* <https://extranet.who.int/sph/docs/file/3848> (accessed August 12, 2020); Aiello et al, *Research Findings from Nonpharmaceutical Intervention Studies for Pandemic Influenza and Current Gaps in the Research*, Am J Infection Control <https://www.ajicjournal.org/article/S0196-6553(10)00039-8/fulltext> (accessed August 12, 2020).

public spaces have been a frequent and fundamental strategy in responding to outbreaks.[18] Limiting non-essential gatherings indoors, and prioritizing sanitation and social distancing while indoors, are also effective strategies in minimizing transmission.

To control a highly infectious disease like COVID-19, additional public health measures must be layered on top of the hygiene, physical/social distancing, stay-at-home, and closure interventions. States must also develop the infrastructure for extensive and rapid testing and contact tracing (a standard public health practice that involves following up with people who have come in contact with someone who has been diagnosed with COVID-19 so they can self-isolate and be tested). Emerging data and research suggest that several countries (including New Zealand, Greece, and Taiwan) achieved remarkable success in their initial responses to COVID-19 by implementing emergency public health interventions and by adopting a cautious and gradual approach to lifting restrictions consistent with public health science and ongoing testing and contact tracing.[19]

COVID-19 has an unfortunate long lag time between infection and the first sign of any symptoms of disease, in stark contrast to many other respiratory viruses. Even though epidemiologists measure the ultimate impact of the disease in hospitalizations and death rates,

[18] Jarvis et al, *Quantifying the Impact of Physical Distance Measures on the Transmission of COVID-19 in the UK*, BMC Med <https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-020-01597-8> (accessed August 12, 2020). The World Health Organization has also recommended the closure of non-essential businesses in the response to severe epidemics and pandemics. *See* World Health Organization, *Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza* <https://extranet.who.int/sph/docs/file/3848> (accessed August 12, 2020).

[19] Wang et al, *Response to COVID-19 in Taiwan: Big Data Analytics, New Technology, and Proactive Testing* <https://jamanetwork.com/journals/jama/fullarticle/2762689> (accessed August 12, 2020); Cousins, *New Zealand Eliminates COVID-19*, Lancet <https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)31097-7.pdf> (accessed August 12, 2020).

these events occur weeks or even a month after COVID-19 infection. In a quickly growing epidemic with high transmissibility, the size of the epidemic can double as many as six times before the first infected individual is identified. For this reason, the epidemiology of COVID-19 requires that public health interventions be proactive, responsive, and implemented (and reimplemented) as quickly as possible in response to even small changes in the incidence of new cases, without waiting for additional doubling times to pass and for even more cases and deaths to accrue. The nature of COVID-19 is such that proactive interventions to limit social interactions are necessary to prevent the spread of disease. To limit the Governor's ability to respond to COVID-19 only after a new spike in hospitalizations or deaths occurs could cost lives.

Multiple COVID-19 vaccines are currently undergoing accelerated development and testing, although it will be quite some time before a safe and effective vaccine is widely available.[20] Even if an effective vaccine is developed soon, states and municipalities will also need to establish a robust vaccine-delivery infrastructure, maintain sufficient rates of acceptance and uptake, and guarantee affordable access to all residents to establish population-level herd immunity. COVID-19 will continue to present a health emergency to the state of Michigan until a vaccine is developed and delivered to the vast majority of people of all ages. Given the attributes of the novel coronavirus and the fact that we do not yet have effective medical treatments or a vaccine, non-pharmaceutical interventions and emergency public health actions—like those adopted by Governor Whitmer—are the cornerstone of prevention and control of COVID-19 in Michigan.

[20] Lurie et al, *Developing Covid-19 Vaccines at Pandemic Speed*, New Eng J Med <https://www.nejm.org/doi/full/10.1056/NEJMp2005630> (accessed August 12, 2020).

B. The Governor's Emergency Orders Have Saved More Than 3,500 Lives

Michigan's science-based approach to the COVID-19 pandemic mirrors the approach of other states that have responsibly implemented reasonable and effective stay-at-home and other emergency public health orders. A recently released national, peer-reviewed study reports that states' adoption of four fundamental social distancing measures in March and April of 2020—(1) large event bans; (2) school closures; (3) entertainment, restaurant, bar, and gym closures; and, (4) shelter-in-place orders—significantly reduced the daily growth rate of COVID-19. The rate of increase in cases was reduced by 5.4% after 1-5 days, 6.8% after 6-10 days, 8.2% after 11-15 days, and 9.1% after 16-20 days.[21] The results from this study also demonstrate that without the adoption of these four social distancing measures, the virus would have spread 35 times faster by April 27, 2020, with about 35 million more cases of the disease nationwide.

Two studies in the journal *Nature* also concluded that government-imposed "anti-contagion policies" such as school and business closures and other movement restrictions had a significant negative impact on the rate of growth of overall number of COVID-19 cases worldwide.[22] Public health emergency interventions in six countries (China, South Korea, Italy, Iran, France, and the United States) prevented or delayed a total of 62 million confirmed cases of COVID-19.[23]

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[21] Courtemanche et al, *Strong Social Distancing Measures in the United States Reduced the COVID-19 Growth Rate*, Health Affairs <https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.00608> (accessed August 12, 2020).

[22] Hsiang et al, *The Effect of Large-Scale Anti-Contagion Policies on the COVID-19 Pandemic*, Nature <https://www.nature.com/articles/s41586-020-2404-8> (accessed August, 2020); Flaxman et al, *Estimating the Effects of Non-Pharmaceutical Interventions on COVID-19 in Europe*, Nature <https://doi.org/10.1038/s41586-020-2405-7> (accessed August 12, 2020).

[23] *Id.*

Another recently published study analyzed the growth rate of COVID-19 cases in the 15 states (including Michigan and Washington, D.C.) that implemented mandates regarding the use of face masks and coverings in public places between April 8, 2020 and May 15, 2020.[24] Controlling for population and other policy factors, this study found that emergency orders requiring people to wear face masks/coverings were associated with a significant decline in the daily COVID-19 growth rate. The orders had an immediate impact within the first five days, and the strong impact was observed 21+ days later. Estimates suggest that by May 22, 2020, between 230,000 and 450,000 cases of COVID-19 were averted by mandating face masks/coverings in these 15 jurisdictions. Similar analyses have concluded that statewide shelter-in-place emergency orders issued through May 15, 2020 significantly slowed the rates of hospitalizations and deaths from COVID-19, averting tens of thousands of deaths.[25]

Epidemiologic indicators of Michigan's COVID-19 outbreak have demonstrated a clear reduction in the growth of new cases following the implementation of social distancing and other emergency measures. Indeed, within just a couple weeks of the stay-at-home directive going into

[24] Lyu & Wehby, *Community Use of Face Masks and COVID-19: Evidence from a Natural Experiment of State Mandates in the U.S.*, Health Affairs <doi.org/10.1377/hlthaff.2020.00818> (accessed August 12, 2020).

[25] *Id.* Most recently, an August 2020 study published in the *Journal of the American Medical Association* concluded that there was a statistically significant association between the closure of primary and secondary schools and a reduction in COVID-19 cases and deaths in the United States. Using sophisticated time-series analysis methods to analyze national data from March 9, 2020 to May 7, 2020, the researchers found that the timing of mandated school closures led to a greater decline in cases and deaths, controlling for other state-level policies and COVID-19 testing levels. Auger et al, *Association Between Statewide School Closure and COVID-19 Incidence and Mortality in the US*, JAMA<https://jamanetwork.com/journals/jama/fullarticle/2769034> (accessed August 12, 2020).

effect, the state saw marked reductions in new cases and deaths.[26] Sophisticated disease modeling of COVID-19 in Michigan, conducted by University of Michigan epidemiologists, has estimated that approximately 28,000 more cases and 3,500 deaths would likely have occurred in Michigan by June 1, 2020 had the Governor not implemented her emergency measures.[27]

Figure 1 below compares the actual course of new COVID-19 cases in Michigan through June 1, 2020 to the projected incidence of new cases that would be have been expected absent the Governor's emergency measures focused on social distancing:

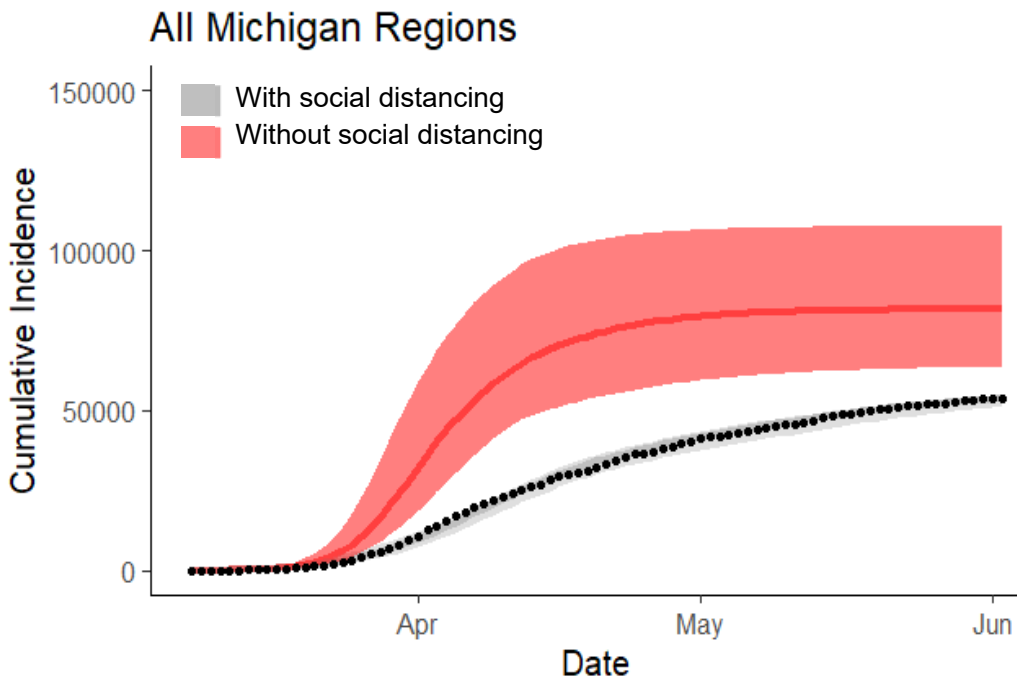

Figure 1. Disease Model Simulations with and Without Social Distancing Interventions. The black dots with grey shading represent the **actual** number of COVID-19 cases in Michigan with social distancing. The coral shading represents the range of **expected** cases without social distancing from different modeling simulations, with the median across the simulations shown as a solid line. Based on the median estimates, the model predicts that without emergency interventions, there would have been 28,000 more cases by June 1, 2020.

The median results from different modeling exercises estimate that by June 1, 2020 the difference between the actual number of COVID-19 cases in Michigan and the expected number

[26] *Michigan COVID-19 Modeling Dashboard* <https://epimath.github.io/covid-19-modeling/> (accessed August 8, 2020).

[27] *Id.*

without social distancing interventions is 28,000. This translates into an estimated 3,500 deaths from COVID-19 that were averted by June 1, 2020 because of the Governor's emergency orders. In addition, the Michigan COVID-19 modeling estimates that the peak of the epidemiologic curve of COVID-19 in April 2020 would likely have been 2.7 times the actual number experienced in Michigan without the emergency orders. In the same vein, absent Governor Whitmer's executive orders, Michigan hospital systems would have exceeded their capacity for treating COVID-19 patients in mid- to late-April 2020, leading to even more suffering and deaths due to COVID-19.[28]

C. The Governor's Statewide Implementation of Emergency Measures Was Necessary to Curtail Rapid Community Spread of COVID-19

COVID-19 is an insidious disease that quietly infiltrates communities, goes undetected for days and weeks, and then explodes exponentially into an outbreak that can quickly overwhelm a community and its health care capacity. Governor Whitmer therefore had little choice but to adopt a statewide public health response to curb the spread of COVID-19.

Epidemiologists classify how contagious an infectious agent is by what is referred to as its "basic reproduction number" or R_0 (pronounced "R naught"). The R_0 value refers to how many other people, on average, a single person with a disease will infect. Once a virus hits a community, the rate of spread can be modeled based upon this reproduction number. Importantly, the reproduction number of an infectious agent needs to be far below 1.0 for it to cease spreading in the absence of a vaccine, thus eventually ending the epidemic.

Seasonal influenza typically has a basic reproduction number of 1.3, meaning that 3 people with influenza will on average infect 4 other people. By contrast, the basic reproduction number of the coronavirus is not yet fully understood, but appears to range somewhere between 2.2 and

[28] *Id.*

5.7 when it first hits a community with no public health protection measures in place.[29] Once reasonable and effective emergency public health interventions are introduced, the reproduction number should decline. For example, the result of a COVID-19 reproduction rate of 2.0 is that a single person may infect on average two other people, who in turn will infect two other people who themselves will infect two other people, and so on. In just four cycles of spread, one single person with COVID-19 in a community could cause 32 other cases wherever she lives, works, shops, worships, or socializes.

This is consistent with developments in Michigan. Levels of hospitalization and death related to COVID-19 were remarkably high in southeast Michigan at the peak of the epidemic in April 2020, although they have since trended downward. As southeast Michigan began to see a decrease in severe cases and death, other areas of Michigan continued on an upward trajectory which has only recently begun to slow. The Governor's statewide stay-at-home and other emergency measures went into place before areas in western and northern Michigan reached exponential levels of growth and high case levels, saving not only lives, but valuable resources and capacity at hospitals and in health care systems, especially those in rural regions. Thus, the statewide orders had the additional benefit of limiting the growth phase of the epidemic across the entire state, ultimately reducing the toll in the west and north. Early statewide intervention saved additional lives and disease burden even in those regions that have seen fewer confirmed cases than the rest of the state.

A recent study by a large independent group of researchers at the Imperial College of London focusing on the global COVID-19 pandemic confirms that the aggressive actions

[29] Sanche et al, *High Contagiousness and Rapid Spread of Severe Acute Respiratory Syndrome Coronavirus 2*, Emerging Infectious Diseases <https://doi.org/10.3201/eid2607.200282> (accessed August 12, 2020).

implemented in Michigan and other U.S. states significantly lowered the transmission rates of the virus, thus reducing the number of cases and deaths.[30] This group concluded that the states that were the most successful in keeping people from interacting with others were also more successful in reducing the spread of the virus, including in Michigan. The research further revealed that after the Governor's emergency orders were implemented in March 2020, the basic reproduction or infection rate in Michigan decreased first to 2.5 people, then to 1.25 people, and then to 0.8 people in April 2020. The emergency public health orders are what drove the basic reproduction rate below 1.0, which must happen if the epidemic is to be contained and stopped.

The novel coronavirus primarily spreads in spaces where people come in close proximity to each other, which unfortunately but necessarily include places dedicated to preserving and protecting health, such as health care delivery sites, hospitals, nursing homes, and treatment centers. The CDC, medical care associations, and provider groups are hard at work developing innovative guidelines for how to safely increase access to such services. In order to protect the health of workers and patients alike, health care delivery cannot return to "normal" or pre-pandemic operations. Rather, primary health care delivery must continue to build capacity in telemedicine, patient-provider communication through online secure portals, safe waiting rooms practices, and patient flow protocols that embrace social distancing, and more streamlined administrative processes.[31] EO 2020-114 and EO 2020-161 were designed to encourage health

[30] Imperial College of London, *Report 23: State-Level Tracking of COVID-19 in the United States* <https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/2020-05-21-COVID19-Report-23.pdf> (accessed August 12, 2020).

[31] United States Centers for Disease Control and Prevention, *Get Your Clinic Ready for Coronavirus Disease 2019 (COVID-19)* <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinic-preparedness.html> (accessed August 12, 2020).

care facilities to build out such safety features and prioritize the health of doctors, workers, and patients.

IV. LIMITING THE GOVERNOR'S ABILITY TO IMPLEMENT, ENFORCE, REVISE, AND LIFT EMERGENCY ORDERS WOULD RISK FURTHER INFECTION AND DEATH THROUGHOUT MICHIGAN

Michigan's first battle with the novel coronavirus has been intense and devastating to both the health and economic welfare of the state. The good news is that, by early June 2020, all indicators—including the number of new cases, hospitalizations, and deaths—suggest that the amount of virus circulating in Michigan communities had been significantly reduced. Even so, every sophisticated simulation model predicted further serious outbreaks of COVID-19 in the near future.[32] In fact, several states, including Arizona, Florida, California, North Carolina, and Texas, experienced a significant rise of COVID-19 cases after social distancing measures were quickly relaxed—resurgences that cannot be explained by increases in testing alone.

Based on our epidemiological expertise, the Governor's emergency measures have had a successful and positive impact on the safety and health of Michiganders. However, cases also have been trending upwards over the summer of 2020, leading to legitimate concerns about another large outbreak. Lifting those measures all at once for the entire state, or removing the Governor's ability to quickly adopt, revise, refine, and lift certain measures if needed in the future, will likely result in even more cases of infection, serious illness, and death. The frontline emergency public health interventions must be implemented very fast, with targeted and decisive action without delay. A delay of just a few days to consider and debate action can make a significant difference in the level of spread and toll from the disease. In addition, decentralized or local approaches to

[32] Wu et al, *First-Wave COVID-19 Transmissibility and Severity in China Outside Hubei After Control Measures, and Second-Wave Scenario Planning: A Modeling Impact Assessment*, Lancet <https://doi.org/10.1016/S0140-6736(20)30746-7> (accessed August 12, 2020).

infectious disease control typically do not work. Of the 83 counties in Michigan, very few have health departments with the epidemiological expertise and data required to identify early signs of a local outbreak and to quickly implement effective local emergency actions. Moreover, especially in the summertime, Michiganders are mobile across city, county, and state lines. Since the virus travels with people, local government approaches alone are not going to be effective in COVID-19 prevention and control. Statewide action is needed.

A. Michigan's Current Testing Infrastructure Alone Will Not Prevent and Control the Spread of COVID-19 without Emergency Measures

Accurate and reliable testing has always been a core countermeasure in tracking and controlling infectious diseases like COVID-19. Widespread, easily accessible testing allows public health officials to quickly ascertain who has COVID-19, to isolate such persons to limit further transmission, and to trace close contacts so that they can self-quarantine and get tested.[33] While the Governor has undertaken significant efforts to expand the state's testing infrastructure and contact-tracing abilities, *see* EO-2020-104, it will take additional time before the state reaches recommended testing and contact-tracing levels.

A research group from the Harvard Global Health Institute has developed estimates for the minimum daily number of tests needed for each state based on its population, the actual and projected numbers of infections, and the ratio of probable close contacts to cases. They recommend that Michigan conduct at least 58,000 tests per day, which is significantly higher than

[33] Eames et al, *Contact Tracing and Disease Control*, Royal Soc'y <https://royalsocietypublishing.org/doi/pdf/10.1098/rspb.2003.2554> (accessed August 12, 2020).

Michigan's current capacity.[34] As of early August, the average number of new COVID-19 tests conducted per day in Michigan is between 28,000 and 40,000.[35]

Moreover, even if Michigan could consistently achieve a sufficiently high testing volume, more contact-tracing resources and personnel are needed. The National Association of County & City Health Officials estimates that there should be 30 contact tracers per 100,000 members of a population, translating to approximately 3,000 contact tracers needed in Michigan, also significantly higher than Michigan's current capacity.[36] The removal of emergency social distancing orders must be coordinated with the state's and local public health agencies' capacity to conduct high levels of testing and contact tracing.

[34] Jah et al, Harvard Global Health Institute, Pandemics Explained, *HGHI and NPR Publish New State Testing Targets* <https://globalepidemics.org/2020/05/07/hghi-projected-tests-needed-may15/> (accessed August 12, 2020).

[35] Michigan State Government, *Coronavirus Michigan Data* <https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173---,00.html> (accessed August 8, 2020).

[36] National Association of County & City Health Officials, NACCH Position Statement, *Building COVID-19 Contact Tracing Capacity in Health Departments to Support Reopening American Society Safely* <https://www.naccho.org/uploads/full-width-images/Contact-Tracing-Statement-4-16-2020.pdf> (accessed August 12, 2020); Simmons-Duffin, *States Nearly Doubled Plans for Contact Tracers Since NPR Surveyed Them 10 Days Ago*, NPR <https://www.npr.org/sections/health-shots/2020/04/28/846736937/we-asked-all-50-states-about-their-contact-tracing-capacity-heres-what-we-learned> (accessed August 12, 2020).

B. The Governor's Executive Orders Remain Necessary to Avoid Further Outbreaks and Death

The unfortunate reality is that Michigan, like the rest of the country and world, is in an early phase of attempting to control the spread and devastation of a novel and unique virus. The number of COVID-19 cases in Michigan has been on the rise again since early June 2020. The Governor's emergency measures serve as a necessary tool in combating the continued spread and trajectory of COVID-19. Prematurely lifting those measures or restricting the ability to reinstate them quickly if the number of cases resurges even more would likely result in a rapid increase in serious illness, hospitalizations, and deaths.

History serves as a guide. A study of 23 U.S. cities in the 1918 influenza pandemic found that jurisdictions who lifted controls earlier had greater mortality and a higher peak during a second wave of infections as compared to those jurisdictions with controls in place for longer duration.[37] During a 1916 outbreak of polio in Oyster Bay, New York, the city initially banned children under 16 from attending public gatherings, but then removed these restrictions due to pressure from the local population. The result was a large citywide outbreak of polio with a rate of 9 per 1,000 members of the population compared to 0.6 per 1,000 in upstate New York, where restrictions remained in place.[38]

What was true then remains true today. Public health interventions—including social distancing and common-sense safety protocols on certain indoor businesses and health care

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[37] Bootsma et al, Proceedings of the National Academy of Sciences, *The Effect of Public Health Measures on the 1918 Influenza Pandemic in U.S. Cities* <https://pubmed.ncbi.nlm.nih.gov/17416677/> (accessed August 12, 2020).

[38] Risse, *Revolt Against Quarantine: Community Responses to the 1916 Polio Epidemic, Oyster Bay, New York*, Transactions & Stud C Physicians Phila <https://www.researchgate.net/publication/21550198_Revolt_against_quarantine_community_responses_to_the_1916_polio_epidemic_Oyster_Bay_New_York> (accessed August 12, 2020).

facilities—are essential in mitigating the health, economic, and social costs of an ongoing global pandemic. To be sure, such emergency measures come with painful costs. However, state and local governments cannot even begin to meaningfully assess or address the economic and social consequences of the pandemic without first getting the virus under control.

Even under the most optimistic estimates, at least 90% of the Michigan population remains susceptible to COVID-19. We are far from the level of herd immunity required to slow the virus without population-based interventions. Abrupt and uncoordinated relaxation of restrictions will lead to increased virus circulation and person-to-person transmission. Americans are understandably eager for businesses, schools, health care institutions, and social activities to reopen; however, unless the virus is under control in all communities with a reproduction rate well under 1.0, opening up too soon (and without the ability to react quickly) will almost certainly lead to another resurgence of cases and further economic damage.[39] Disease models demonstrate that if social distancing and other public health measures are abruptly stopped in Michigan, a resurgence of COVID-19 would likely occur, with peak disease rates potentially nearing or exceeding levels experienced in the current outbreak.[40] If social distancing is lifted gradually over a longer period of time in a calibrated and coordinated manner with other public health interventions, the number of new cases could still increase, but worst-case scenario estimates from an abrupt opening up could be cut nearly in half.[41] Public health must be a top policy priority, not

[39] Yglesias, *Top Economists Warn Ending Social Distancing Too Soon Would Only Hurt the Economy*, Vox News <https://www.vox.com/2020/3/29/21198750/chicago-poll-social-distancing-economy> (accessed August 12, 2020).

[40] *Michigan COVID-19 Modeling Dashboard* <https://epimath.github.io/covid-19-modeling/> (accessed August 8, 2020).

[41] *COVID Act Now Modeling Results for Michigan* <https://covidactnow.org/us/mi?s=38532> (accessed August 8, 2020).

just for the sake of containing the virus but also for enabling businesses, schools, and health care providers to continue to serve their communities.

* * *

COVID-19 is a complex and dangerous disease. To date, it has taken the lives of more than 6,500 Michiganders over the span of less than five months since the first diagnosis. Until there is an effective and affordable vaccine with high enough uptake and infrastructure to create herd immunity, Michigan's only defense is forceful and nimble emergency action based on high-quality data and proven public health interventions.[42] *See South Bay United Pentecostal Church*, 140 S Ct 1613, 1613 (2020) (ROBERTS, C.J., concurring) (noting how COVID-19 is an "extraordinary health emergency" with "local officials actively shaping their response to changing facts on the ground"). Governor Whitmer's carefully tailored executive orders—and her ability to implement, change, rescind, and re-implement them quickly—remain crucial to containing COVID-19. The Governor's actions have saved thousands of lives to date. Forcing the Governor to lift these measures prematurely, or limiting her future ability to respond to COVID-19, would risk an even greater public health disaster.

CONCLUSION

For the foregoing reasons, *amici* respectfully submit that the Court should affirm the legality of Governor Whitmer's Executive Orders and the constitutionality of the emergency statutes that authorize such essential, life-saving measures.

[42] Jones, *History in a Crisis – Lessons for Covid-19*, New Eng J Med <https://pubmed.ncbi.nlm.nih.gov/32163699/> (accessed August 12, 2020).

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Respectfully submitted,

/s/ Jennifer L. McManus
Jennifer L. McManus (P65976)

FAGAN MCMANUS, P.C.
25892 Woodard Avenue
Royal Oak, MI 48067-0910
Telephone: (248) 542-6300
Facsimile: (248) 542-6301
jmcmanus@faganlawpc.com

/s/ Joshua Matz
Joshua Matz (*PHV motion pending*)
Raymond P. Tolentino (*PHV motion pending*)
Jonathan R. Kay (*PHV motion pending*)
Mahrah M. Taufique (*PHV motion pending*)

KAPLAN HECKER & FINK LLP
350 Fifth Avenue, Suite 7110
New York, New York 10118
Telephone: (212) 763-0883
Facsimile: (212) 564-0883
jmatz@kaplanhecker.com
rtolentino@kaplanhecker.com
jkay@kaplanhecker.com
mtaufique@kaplanhecker.com

Attorneys for Amici Curiae

APPENDIX

Paula M. Lantz, PhD, MS
Associate Dean for Academic Affairs and James B. Hudak Professor of Health Policy
Professor of Health Management and Policy
Ford School of Public Policy
University of Michigan
Ann Arbor, Michigan

Matthew L. Boulton, MD, MPH
Senior Associate Dean for Global Public Health
Pearl L. Kendrick Collegiate Professor of Global Public Health
Professor of Epidemiology & Preventive Medicine
Editor-in-Chief, *American Journal of Preventive Medicine*
School of Public Health
University of Michigan
Ann Arbor, Michigan

Emily Martin, PhD, MPH
Associate Professor of Epidemiology
School of Public Health
University of Michigan
Ann Arbor, Michigan

Mona Hanna-Attisha, MD, MPH
C.S. Mott Endowed Professor of Public Health
Director, Michigan State University and Hurley Children's Hospital Pediatric Public Health Initiative
Pediatrician, Hurley Medical Center
Flint, Michigan

Abram L. Wagner, PhD, MPH
Research Assistant Professor
Department of Epidemiology
School of Public Health
University of Michigan
Ann Arbor, Michigan

Loretta Bush, MHSA
President and CEO
Authority Health
Detroit, Michigan

Marisa Eisenberg, PhD, MS
Associate Professor of Epidemiology, School of Public Health
Associate Professor of Complex Systems and Mathematics, College of Literature, Science and the Arts
University of Michigan
Ann Arbor, Michigan

Joseph Eisenberg, PhD, MPH
Chair and Professor of Epidemiology
Professor of Global Health
School of Public Health
University of Michigan
Ann Arbor, Michigan

C. Debra Furr-Holden, Ph.D.
Associate Dean for Public Health Integration
Director, Division of Public Health
Associate Chair of Public Health and Clinical Integration, Department of Family Medicine
C.S. Mott Endowed Professor of Public Health
Professor, Department of Epidemiology and Biostatistics
College of Human Medicine
Michigan State University
Director, Flint Center for Health Equity Solutions

Howard Markel, MD, PhD
George E. Wantz Distinguished Professor of the History of Medicine
Director, Center for the History of Medicine
Professor of Pediatrics and Communicable Diseases
Professor of Health Management and Policy
University of Michigan
Ann Arbor, Michigan

James S. Marks, MD, MPH
Rear Admiral, United States Public Health Service (retired)
Assistant Surgeon General (retired)
Executive Vice President, Robert Wood Johnson Foundation (retired)
Ann Arbor, Michigan

Phyllis Meadows, PhD, MSN, RN
Senior Fellow and Health Advisor, Kresge Foundation
Former Director of Public Health, City of Detroit
Former Associate Dean for Public Health Practice, University of Michigan School of Public Health
Ann Arbor, Michigan

Dawn Misra, PhD
Professor and Chair
Department of Epidemiology and Biostatistics
College of Human Medicine
Michigan State University
Lansing, Michigan

Nigel Paneth MD MPH
University Distinguished Professor
Departments of Epidemiology & Biostatistics and Pediatrics & Human Development
College of Human Medicine
Michigan State University
Lansing, Michigan

James Sunstrum, MD
Clinical Associate Professor, Wayne State University School of Medicine
Infectious Disease Physician
Beaumont Hospital
Dearborn, Michigan

PROOF OF SERVICE

I hereby certify that on August 12, 2020, I electronically filed and electronically served:

BRIEF OF *AMICI CURIAE* MICHIGAN EPIDEMIOLOGISTS IN SUPPORT OF DEFENDANTS GOVERNOR OF MICHIGAN AND MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES DIRECTOR

with the Clerk of the Court using the MiFile system which will send notification of such filing to all attorneys of record.

FAGAN MCMANUS, P.C.

By:/s/ Jennifer L. McManus

Jennifer L. McManus (P65976)
Attorney for *Amici Curiae*
25892 Woodward Avenue
Royal Oak, MI 48067-0910
(248) 542-6300
jmcmanus@faganlawpc.com

Dated: August 12, 2020