

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby
County Sheriff's Office,

Respondents-Defendants.

Case No. _____

**PETITIONERS-PLAINTIFFS' MOTION FOR
TEMPORARY RESTRAINING ORDER**

Plaintiffs hereby move this Court, pursuant to Fed. R. Civ. P. 65¹ and 28 U.S.C. §§ 2241, 2243, for a Temporary Restraining Order:

1. Granting Plaintiffs' petition for a writ of habeas corpus and directing their immediate release;
2. Directing Defendants to produce, within 12 (twelve) hours of the entry of the Order, a list of all other Class and Subclass members, as defined in paragraphs 41 and 42 of Plaintiffs' Complaint, detained at the Jail, including their location, charge, and bond status;

¹ See Fed. R. Civ. P. 81(a)(4), explaining that the Federal Rules of Civil Procedure "apply to proceedings for habeas corpus . . . to the extent that the practice proceedings [are] not specified in a federal statute, the Rules Governing Section 2254 Cases, or the Rules Governing Section 2255 Cases." As documented in the Certificate of Service filed herewith, Plaintiffs' counsel provided notice of the relief sought in this Motion to Defendants in accordance with Federal Rule of Civil Procedure 65 and Local Rule 65.1.

3. Directing Defendants to, within twenty-four (24) hours) of the entry of the Order, release and/or enlarge the custody pending full adjudication of the habeas petition of all members of the Class and Subclass who are incarcerated solely due to their inability to afford a financial condition of release, or solely due to an alleged technical violation of probation or parole;
4. Directing Defendants to, within twenty-four (24) hours of the entry of the Order, provide a list to the Court and to Counsel for Plaintiffs noting the basis for any objections to the release of the remaining Class and Subclass members. Such objections must be limited to evidence of a credible risk of pretrial flight or danger to others;
5. Directing Defendants to, within forty-eight (48) hours, release and/or enlarge the custody of any Class and Subclass members whose release Defendants do not note an objection to;
6. With respect to any and all remaining Class and Subclass members to whose release Defendants object, directing the parties to meet and confer within one or two business day(s) of Defendants' submission to Plaintiffs of the list of objections.

Plaintiffs further request that the Court conduct a hearing, to consider and rule upon the relief requested in Plaintiff's motion, considering:

- a. the deprivation of the petitioner's federal rights posed by the COVID-19 outbreak (including the disability discrimination for Subclass members and the necessity of providing modifications including release);
- b. any competent evidence that the individual poses a serious risk of flight or danger to others;

- c. whether, by clear and convincing evidence, any presented risk of flight of danger outweighs the threat to the petitioner's health and safety posed by his exposure to COVID-19 in the Jail, after considering alternative conditions to manage the risk(s) presented.

The grounds for this motion are set forth in the Brief in Support of Plaintiffs' Motion for Temporary Restraining Order, filed herewith, and the accompanying Declarations in support.

Dated: May 20, 2020

Respectfully submitted,

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**BRIEF IN SUPPORT OF PETITIONERS-PLAINTIFFS' MOTION
FOR TEMPORARY RESTRAINING ORDER**

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INTRODUCTION

Plaintiffs are persons detained pretrial who, because of their age, underlying medical conditions, or disabilities are at high risk of severe illness or death from COVID-19, yet they are being held at the Shelby County Jail (the “Jail”) in the midst of the greatest public health crisis of a century, in violation of their constitutional and federal statutory rights. Plaintiffs’ constitutional rights are being violated because, owing to their vulnerability, they cannot be housed safely at the Jail. They cannot be housed safely at the Jail because it is impossible to practice social distancing, which is compounded by inadequate testing for COVID-19 that precludes any approximation of who among the Jail population is infectious, and because it is impossible to practice vigilant hygiene within the Jail. The Court should order their immediate release.¹ Likewise, the Court should order the release of all persons who are currently being or will in the future be held in the Jail’s custody during the COVID-19 outbreak in Tennessee who are medically vulnerable (the “Class”)² and individuals who are medically vulnerable because of disabilities (the “Subclass”).³

¹ The term “release” refers to the discharge of detained individuals from the physical confines of the Shelby County Jail, not necessarily release from all forms of custody. Release options may include, but are not limited to: supervised release (including through the use of GPS or other forms of location monitoring), halfway house residential placement, transfer to a hospital or other facility, or diversion to alternative community and treatment programs. Indeed, Shelby County already maintains a Pretrial Services Department “offering alternatives to incarceration at every stage of the criminal justice system.” *See Pretrial Services*, SHELBY CTY. TENN., <https://www.shelbycountyttn.gov/250/Justice-Initiatives> (last visited May 19, 2020); *see also* Declaration of Bill Powell (“Powell Decl.”) at ¶ 11.

² The Class is defined as follows: all current and future persons held at the Jail in pretrial custody during the COVID-19 pandemic who are 55 and older, as well as all current and future persons held at the Jail during the COVID-19 pandemic of any age who, by virtue of their underlying medical conditions, are at high risk of severe infection or death from COVID-19.

³ The Subclass consists of all current and future pretrial detainees in the Jail who are medically vulnerable because of a disability as defined in the Americans with Disabilities Act (“ADA”) and the Rehabilitation Act. This includes everyone in the Class except those who are medically vulnerable solely because of age or a Body Mass Index (BMI) over 40.

COVID-19 presents an immediate threat to Plaintiffs and to the Class members they represent and they are likely to suffer irreparable harm absent injunctive relief. The disease has already infiltrated the Jail and infected a large number of people, and it continues to spread rapidly among the incarcerated population and staff. On April 17, there were only five confirmed cases of COVID-19 among detained persons at the Jail. As of May 20, 2020, 151 individuals housed at the Jail and 66 employees have tested positive for COVID-19. At least one Shelby County Sheriff's Office employee who contracted the virus has died. The disease is spreading through the Jail exponentially. Without intervention, Defendants' failures will allow COVID-19 to continue to wreak havoc not only on the health of people incarcerated at the Shelby County Jail, but also that of Jail staff and members of the broader community.

Plaintiffs' release, and that of the Class members, with adequate public health and safety measures, is in Defendants' interest and the interest of the public generally. The Jail is not separate from the broader community, and the Jail's failure to manage the COVID-19 threat will cause additional, preventable deaths in the community at large. A rapid, continued outbreak in the Shelby County Jail will have severe consequences for the people detained at the Jail and would drain the Memphis area of limited resources to fight the pandemic.

For these reasons, and for the reasons explained further below, the Court should grant Plaintiffs' Motion.

FACTS

I. Plaintiffs and the Class Members Are at High Risk of Severe Illness or Death from COVID-19.

The CDC has provided a non-exhaustive list of factors, including age and medical conditions, that put people at high risk of severe illness or death from COVID-19.⁴ Plaintiffs and the Class they seek to represent are all people at high risk of severe illness or death if they contract COVID-19. In addition, the Jail population is more than 86 percent African American,⁵ and, according to the CDC, African Americans are both statistically more likely to have the medical conditions that increase the risk of complications or death from COVID-19⁶ and 2.6 times more likely to die from COVID-19 than white Americans.⁷

⁴ See *Coronavirus Disease 2019 (COVID-19) People Who Are at Higher Risk for Severe Illness*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/underlying-conditions.html> (last visited May 19, 2020); *Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019—United States, February 12–March 28, 2020*, CTRS. FOR DISEASE CONTROL & PREVENTION (Apr. 3, 2020), <https://www.cdc.gov/mmwr/volumes/69/wr/mm6913e2.htm>. According to the CDC, people of any age who have certain underlying medical conditions, including lung disease, heart disease, chronic liver or kidney disease (including dialysis patients), diabetes, epilepsy, hypertension, compromised immune systems (such as from cancer, HIV, or autoimmune disease), blood disorder (including sickle cell disease), stroke, severe obesity (as defined as a body mass index of 40 or higher), and moderate to severe asthma, are at elevated risk. See *id.*; *Coronavirus Disease 2019 (COVID-19) Groups At Higher Risk For Severe Illness*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html> (last visited May 19, 2020).

⁵ *Shelby County, TN*, MACARTHUR FOUNDATION, SAFETY + JUSTICE CHALLENGE, <http://www.safetyandjusticechallenge.org/challenge-site/shelby-county/> (last visited May 20, 2020).

⁶ The rate of diabetes is 60 percent higher in black Americans than in white Americans. See *Diabetes and African Americans*, U.S. DEP'T OF HEALTH & HUMAN SERVS. OFFICE OF MINORITY HEALTH <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=18> (last visited May 19, 2020). The rate of hypertension is also 40 percent higher. See *Heart Disease and African Americans*, U.S. DEP'T OF HEALTH & HUMAN SERVS. OFFICE OF MINORITY HEALTH <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=19> (last visited May 19, 2020).

⁷ *The Color of Coronavirus: COVID-19 Deaths by Races and Ethnicity in the U.S.*, APM RESEARCH LAB (May 12, 2020), <https://www.apmresearchlab.org/covid/deaths-by-race>.

The risk of serious illness or death from COVID-19 also increases with age. CDC data reveals that rates of hospitalization for COVID-19 are approximately *three times higher* among people age 50-64 than for younger people.⁸ Hospitalization is “a marker of ‘serious harm.’” *Savino v. Souza*, No. CV 20-10617-WGY, 2020 WL 1703844, at *7 (D. Mass. Apr. 8, 2020). And, deaths among people hospitalized with COVID-19 are three times higher for people age 50-64 (9.8 percent of people hospitalized with COVID-19 died) compared to those age 18-49 (3.4 percent of people hospitalized with COVID-19 died).⁹ Health experts agree that detained persons age 50 or older are more likely to suffer serious complications from COVID-19, particularly because incarcerated patients tend to age faster than non-incarcerated persons.¹⁰ *See* Declaration of Dr. Joe Goldenson, M.D. (“Goldenson Decl.”) at ¶ 10; Declaration of Dr. Marie Griffin, M.D. (“Griffin Decl.”) at ¶ 5.¹¹

Plaintiff Favian Busby is an African-American man who has been diagnosed with diabetes, for which he receives injections of insulin based on his blood sugar level, and hypertension, for which he takes medication daily. *See* First Declaration of Josh Spickler

⁸ *See* Shikha Garg et al., *Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019—COVID—NET, 14, States, March 1-30, 2020*, CTRS. FOR DISEASE CONTROL & PREVENTION (Apr. 17, 2020), <https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm>.

⁹ *See* Jeremy Gould et al., *Characteristics and Clinical Outcomes of Adult Patients Hospitalized with COVID-19—Georgia, March 2020*, CTRS. FOR DISEASE CONTROL & PREVENTION (Apr. 29, 2020, Updated May 8, 2020), <https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e1.htm>.

¹⁰ Brie Williams et al., *Aging in Correctional Custody: Setting a Policy Agenda for Older Prisoner Health Care*, AM. J. PUB. HEALTH (Aug. 2012), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3464842/> (“many estimate that prisoners’ physiological age averages 10 to 15 years older than their chronological age”).

¹¹ *See* Gould, *supra* note 9. The CDC’s recognition that “people 65 years and older” as a discrete, high-risk group is an appropriate point to *begin* the risk analysis, but does not foreclose a lower age cutoff in light of research and the specific health factors in jail, as discussed in Dr. Nina Fefferman’s Declaration. *See* Declaration of Dr. Nina Fefferman (“Fefferman Decl.”) at ¶ 11.

(“Spickler-Busby Decl.”) at ¶ 9. Diabetes alone places Mr. Busby squarely within the CDC’s high-risk category. *See* Griffin Decl. at ¶ 14. Mr. Busby also recently had surgery to implant a new joint between his femur and hip, from which he is still recovering. Spickler-Busby Decl. at ¶ 11. Mr. Busby is a person with a disability under the ADA and the Rehabilitation Act.

Plaintiff Michael Edgington is 60 year-old African-American man who, because of his age, is also high risk. *See* Second Declaration of Josh Spickler (“Spickler-Edgington Decl.”) at ¶ 4.

II. Medically Vulnerable Detained Persons Face an Imminent Risk of Substantial Bodily Harm.

The danger of COVID-19 to Plaintiffs, and other medically vulnerable and disabled individuals, is especially acute at the Shelby County Jail. COVID-19 is transmitted by air and touch through aerosol droplets created when an infected person coughs, sneezes, or talks.¹² As a result, “congregate environments,” such as jails, are particularly dangerous due to the ease with which COVID-19 spreads.¹³ *See* Griffin Decl. at ¶ 12. Seven out of the top ten COVID-19 clusters in the United States are connected to jails and prisons.¹⁴ Social distancing, defined as keeping at least six feet of distance from other people when outside the home and avoiding group gatherings,

¹² *See Social Distancing*, CTRS. FOR DISEASE CONTROL & PREVENTION <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html> (last visited May 19, 2020).

¹³ The CDC has specifically noted that that “[c]orrectional and detention facilities face challenges in controlling the spread of infectious diseases because of crowded, shared environments and potential introductions by staff members and new intakes.” Megan Wallace et al., *COVID-19 in Correctional and Detention Facilities—United States, February–April 2020*, CTRS. FOR DISEASE CONTROL & PREVENTION (May 15, 2020), <https://www.cdc.gov/mmwr/volumes/69/wr/mm6919e1.htm>. The CDC has similarly observed that long-term care facilities and nursing homes pose a particular risk because of “their congregate nature” and the residents served. *Preparing for COVID-19 in Nursing Homes*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://cutt.ly/7tEEITH> (last visited May 19, 2020).

¹⁴ *Coronavirus in the U.S.: Latest Map and Case Count*, N.Y. TIMES (May 19, 2020), <https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html>.

and vigilant hygiene, including frequent washing of hands with soap and water, are the only known measures for preventing the virus's spread.¹⁵ See Goldenson Decl. at ¶ 14. The CDC refers to social distancing as the “cornerstone” of any effective strategy to combat the spread of COVID-19 in correctional and detention facilities.¹⁶

At the Shelby County Jail, the dorm-like structure of the facility makes social distancing impossible. About 40-42 men, including Mr. Busby, are housed in H pod, which consists of 32 cells, many of which currently hold 2 people. See Spickler-Busby Decl. at ¶ 13; Declaration of Stella Yarbrough (“Yarbrough Decl.”) at ¶ 4. In L pod, where Mr. Edgington is housed, there are 23 mostly 2-person cells holding around 30-33 men. Spickler-Edgington Decl. at ¶ 7. Detained individuals who share a cell sleep in beds only three or four feet apart. See Yarbrough Decl. at ¶¶ 5, 46. When two individuals are in a cell together, they cannot stay six feet apart. See Spickler-Edgington Decl. at ¶ 6; Yarbrough Decl. at ¶¶ 5, 46. Jail staff come in and out of multiple pods during their shifts. See Spickler-Busby Decl. at ¶ 24. Detained individuals must congregate in communal areas in close contact with each other when eating, showering, washing their clothes, receiving medication, working, and moving from one part of the Jail to another. See Spickler-Busby Decl. at ¶¶ 12, 25; Spickler-Edgington Decl. at ¶¶ 8-12, 14. People in the Jail often eat at

¹⁵ See *Social Distancing*, *supra* note 12; *How to Protect Yourself & Others*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html> (last visited May 19, 2020). The University of Tennessee Health Science Center similarly notes that “the only current advice is to avoid others who might be sick.” *Expert Responses*, UNIV. OF TENN. HEALTH SCI. CTR., <https://uthsc.edu/coronavirus/expert-responses.php> (last visited May 19, 2020); see also *Wilson v. Williams*, No. 4:20-cv-00794-JG, ECF No. 85 (N.D. Ohio May 19, 2020) (“Distancing has been, and continues to be, the institution’s best hope for sparing medically-vulnerable inmates from the serious medical consequences, and potential death, associated with COVID-19”).

¹⁶ See *Interim Guidance on Management of Coronavirus Disease 2019 (COVID-19) in Correctional and Detention Facilities*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/community/correction-detention/guidance-correctional-detention.html> (last visited May 19, 2020).

small circular tables with four to six other people. *See* Spickler-Busby Decl. at ¶ 16; Spickler-Edgington Decl. at ¶ 8; Yarbrough Decl. at ¶ 21. Using the phone kiosk requires a person to stand shoulder to shoulder with others. *See* Spickler-Busby Decl. at ¶ 17.

Insufficient hygiene supplies, services, and facilities exacerbate the risk associated with the impossibility of practicing social distancing. Jail staff do not consistently use masks or gloves. *See* Spickler-Busby Decl. at ¶¶ 15, 24; Spickler-Edgington Decl. at ¶ 10; Yarbrough Decl. at ¶¶ 32, 57. Detainees are given one mask at a time, and must continue to reuse the single mask for weeks at time. *See* Spickler-Busby Decl. at ¶ 23; Yarbrough Decl. at ¶¶ 30, 56. Some individuals have gloves but most do not. *See* Yarbrough Decl. at ¶¶ 31, 56. Class members must also use, and reuse, the same “high-touch” items, such as telephones, sinks, dining tables, and showers. Not all of these items are wiped or disinfected between individual uses. *See* Spickler-Busby Decl. at ¶ 17; Yarbrough Decl. at ¶ 11. The Jail provides cleaning supplies for detained individuals to clean their own cells through a pod officer, but if a pod officer is not stationed in the pod, individuals are not provided with cleaning supplies and cannot clean their cells. *See* Yarbrough Decl. at ¶ 9. There is no hand sanitizer. *See* Spickler-Busby Decl. at ¶ 22; Declaration of Michael Working (“Working Decl.”) at ¶ 18; Yarbrough Decl. at ¶¶ 17, 53. The Jail does not provide adequate supplies of soap, and detained individuals frequently run out and often go for several days without a replenished supply. *See* Spickler-Busby Decl. at ¶ 20; Yarbrough Decl. at ¶¶ 16, 52. People in the facility must use the congregate and high-touch areas to access food or use the bathroom even when there is no soap and surfaces have not been disinfected.

Further, due to inadequate testing and screening, neither Defendants nor anyone living or working in the Jail knows the full extent of who has the virus and who is infectious. The Jail does not test people when they arrive, nor does it regularly test staff, and new arrestees are generally

housed in shared quarters for days before moving to the general population without knowing whether they are carriers of COVID-19. *See* Declaration of Josie Holland (“Holland Decl.”) at ¶ 5; Working Decl. at ¶ 22. On or about April 25, 2020, the Jail tested approximately 260 detained individuals for COVID-19.¹⁷ Out of this number, 155 individuals were reported to have tested positive for the virus.¹⁸ Several people in Mr. Busby’s pod tested positive and were moved into isolation on the sixth floor. *See* Spickler-Busby Decl. at ¶ 14; Yarbrough Decl. at ¶ 36. Prior to those positive tests, Mr. Busby reports that the men were frequently in close proximity to other people in detention, they did not have masks, and they shared common surfaces with everyone else in H pod. *See* Spickler-Busby Decl. at ¶ 14. None of the individuals who tested positive at the end of April displayed symptoms. *See* Yarbrough Decl. at ¶ 37. Some individuals refused to report their COVID-19 symptoms or be tested because they did not want to be moved into isolation. *See* Spickler-Busby Decl. at ¶ 26; Yarbrough Decl. at ¶ 39. On May 15, 2020, new testing numbers were released showing 151 pretrial detainees and 66 staff had tested positive.¹⁹ The Jail does not provide universal testing for COVID-19, although individuals continue to exhibit symptoms. *See* Working Decl. at ¶ 23; Yarbrough Decl. at ¶¶ 42, 44.

III. Immediate Release Is the Only Way to Protect the Medically Vulnerable.

Because testing and screening for COVID-19 at the Jail is wholly inadequate, making it impossible to know who is likely to be infectious, the only way medically vulnerable people can avoid serious illness and death from COVID-19 is to mitigate the likelihood of contracting the

¹⁷ *Nearly 200 Detainees and Employees at 201 Poplar Test Positive for COVID-19*, WMCACTIONNEWS5 (Apr. 29, 2020), <https://www.wmcactionnews5.com/2020/04/29/nearly-detainees-employees-poplar-test-positive-covid-/>.

¹⁸ *Id.*

¹⁹ Yolanda Jones, *West Tennessee Prisons, Shelby County Jail Hit Hard by Coronavirus*, DAILY MEMPHIAN (May 18, 2020), <https://dailyMemphian.com/article/14121/tennessee-department-of-correction-shelby-county-jail-covid-19-testing-positive>.

disease by practicing social distancing and vigilant hygiene. Because these measures are impossible at the Jail, only the immediate release of Plaintiffs and other medically vulnerable detained persons will protect them from contracting COVID-19 and vindicate their constitutional and statutory rights.

Numerous public health experts have strongly cautioned that people booked into and held in jails are likely to face serious, even grave, harm due to the outbreak of COVID-19.²⁰ Because of the severity of the threat posed by COVID-19, and its potential to spread rapidly throughout a correctional setting, public health experts recommend the prompt release from custody of people most vulnerable to COVID-19.²¹ Release protects people with the greatest vulnerability to COVID-19 from infection, and allows for greater risk mitigation for people held or working in a jail and the broader community in which it is situated.²² Release of the most vulnerable people

²⁰ See, e.g., *Velesaca v. Decker*, 20-cv-1803 (S.D.N.Y.) at Doc. No. 42 (March 16, 2020) (Declaration of Dr. Jaimie Meyer); Amanda Holpuch, *Calls Mount to Free Low-risk US Inmates to Curb Coronavirus Impact on Prisons*, THE GUARDIAN (Mar. 13, 2020), <https://cutt.ly/itRSDNH>; Kelan Lyons, *Elderly Prison Population Vulnerable to Potential Coronavirus Outbreak*, CONN. MIRROR (March 11, 2020), <https://cutt.ly/BtRSxCF>; Craig McCarthy & Natalie Musumeci, *Top Rikers Doctor: Coronavirus 'Storm is Coming,'* N.Y. POST (Mar. 19, 2020), <https://cutt.ly/ptRSnVo>; Oluwadamilola T. Oladeru et al., *What COVID-19 Means for America's Incarcerated Population – and How to Ensure It's Not Left Behind*, HEALTH AFFAIRS (Mar. 10, 2020), <https://cutt.ly/QtRSYNA>; Madison Pauly, *To Arrest the Spread of Coronavirus, Arrest Fewer People*, MOTHER JONES (Mar. 12, 2020), <https://cutt.ly/jtRSPnk>; Anne C. Spaulding, *Coronavirus COVID-19 and the Correctional Jail*, EMORY CTR. FOR THE HEALTH OF INCARCERATED PERS. (Mar. 9, 2020), <https://cutt.ly/MyYYVc0>; Marc F. Stern, *Washington State Jails Coronavirus Management Suggestions in 3 "Buckets,"* WASHINGTON ASSOC. OF SHERIFFS & POLICE CHIEFS (Mar. 5, 2020), <https://cutt.ly/8yYYHny>.

²¹ See Goldenson Decl., at ¶¶ 39, 40 (noting that release is the “only viable course of action” for protecting medically vulnerable individuals at the Jail, and will “reduce[] the burden on the healthcare infrastructure” of the Jail and the broader community); Laura Hawks et al., *COVID-19 in Prisons and Jails in the United States*, JAMA INTERN MED. (Apr. 28, 2020), <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2765271>.

²² Eric Lofgren et al., *The Epidemiological Implications of Incarceration Dynamics in Jails for Community, Corrections Officer, and Incarcerated Population Risks from COVID-19* (May 4, 2020), <https://www.medrxiv.org/content/10.1101/2020.04.08.20058842v2.full.pdf>.

from custody also reduces the burden on the region's healthcare infrastructure by reducing the likelihood that an overwhelming number of people will become seriously ill from COVID-19 at the same time. *See* Fefferman Decl. at ¶ 9. This is because a continued outbreak in the Jail will directly cause additional, preventable deaths in the community at large. *See* Fefferman Decl. at ¶ 12.

To vindicate constitutional rights of detainees and to promote public health in the face of the COVID-19 pandemic, federal and state courts across the country have ordered the release of medically vulnerable individuals from confinement. *See, e.g., Wilson v. Williams*, No. 4:20-cv-00794-JG, ECF No. 22 (N.D. Ohio Apr. 22, 2020) (ordering removal of all medically vulnerable prisoners from a federal prison with a COVID-19 outbreak),²³ *Martinez-Brooks v. Easter*, No. 3:20-CV-00569 (MPS), 2020 WL 2405350 (D. Conn. May 12, 2020) (ordering, *inter alia*, identification of medically vulnerable detainees, and their consideration for compassionate release or home confinement, implementing a process to make full and speedy use of home confinement, and requiring elimination of certain barriers to consideration for release or transfer).²⁴ This includes decisions providing for the release of all medically vulnerable prisoners (or at least those not presenting special concerns of flight or dangerousness).

²³ *See also Wilson v. Williams*, No. 4:20-cv-00794-JG, ECF No. 85 (N.D. Ohio May 19, 2020) (order enforcing preliminary relief, noting *inter alia* that evaluating only a small handful of the 837 medically vulnerable prisoners at the Elkton federal facility for transfer to home confinement, compassionate release, or other transfer did not comply with the district court's order).

²⁴ *See also Malam v. Adducci*, No. 5:20-cv-10829, ECF No. 22, 29 (E.D. Mich. Apr. 5 2020, Apr. 9, 2020) (opinion and order) (ordering release of two detainees in Michigan at high risk for serious illness due to their age and underlying health conditions); *United States v. Amarrah*, No. 17-20464, 2020 WL 2220008 (E.D. Mich. May 7, 2020); *United States v. Hansen*, No. 17 CR 50062, 2020 WL 2219068 (N.D. Ill. May 7, 2020); *United States v. Howard*, No. 4:15-CR-00018-BR, 2020 WL 2200855 (E.D.N.C. May 6, 2020).

ARGUMENT

Plaintiffs meet the legal requirements for the Court to grant them a temporary restraining order. As explained below, (1) they are likely to succeed on the merits of their claims; (2) they are likely to suffer irreparable harm in the absence of relief; (3) the balance of equities tips in their favor; and (4) an injunction is in the public interest. *See Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008). Where plaintiffs demonstrate “irreparable harm which decidedly outweighs any potential harm to the defendant,” the “degree of likelihood of success required” is less, and a plaintiff need only raise “serious questions going to the merits.” *In re DeLorean Motor Co.*, 755 F.2d 1223, 1229 (6th Cir. 1985).

IV. Plaintiffs Are Likely to Succeed on the Merits of Their Claims.

Plaintiffs are likely to establish that Defendants violated—and continue to violate—Plaintiffs’ constitutional and statutory rights by condemning them, in spite of their high vulnerability to COVID-19 complications and death, to confined, close quarters, where it is impossible for them to practice social distancing and maintain good hygiene. So long as Plaintiffs remain in the Jail, Defendants *cannot* adequately mitigate the risk of serious injury or death faced by Plaintiffs as a result of COVID-19. Under even the strictest view of Plaintiffs’ burden, this risk demonstrates a high likelihood of success on the merits. Accordingly, Plaintiffs’ continued detention violates their constitutional and federal rights.

A. Plaintiffs’ Continued Detention, and That of the Class Members, Violates Their Constitutional Rights.

Because Plaintiffs are individuals who have not been convicted of any crime, their continued detention in the midst of the COVID-19 pandemic violates their Due Process right to be *free from punishment*. *See Bell v. Wolfish*, 441 U.S. 520, 535 (1979) (“[U]nder the Due Process Clause, a detained person may not be punished prior to an adjudication of guilt in accordance with

due process of law.”). Punishment is established if the jailer’s conduct is either not rationally related to a legitimate, non-punitive government purpose or is excessive in relation to that purpose. *Id.* at 561; *see also J.H. v. Williamson Cty.*, 951 F.3d 709, 717 (6th Cir. 2020) (applying *Bell* test to pre-trial detained person’s conditions of confinement claim); *Turner v. Stumbo*, 701 F.2d 567, 572-73 (6th Cir. 1983) (same).

The Supreme Court has recognized only two legitimate government interests in pretrial detention: to prevent a credible risk of flight, *see Stack v. Boyle*, 342 U.S. 1, 8 (1951), and to prevent a credible, serious risk to public safety, *see United States v. Salerno*, 481 U.S. 739, 745 (1987). Even if Plaintiffs’ and proposed Class members’ pretrial detention were otherwise justified as the least restrictive way to mitigate a credible risk of flight or danger in normal times—which Plaintiffs do not concede to be the case—their confinement in a facility that puts their lives in danger is excessive in light of the government’s original interest in detention.

By continuing to detain Plaintiffs in an environment that exposes them to an unreasonable risk to their future health, Defendants also run afoul of substantive Due Process protections, which are at least as expansive as the protections of the Eighth Amendment against cruel and unusual punishment. *See City of Revere v. Mass. Gen. Hosp.*, 463 U.S. 239, 244 (1983) (holding that the Due Process Clause protects pretrial detained persons to at least the same extent the Eighth Amendment protects convicted prisoners); *see also Helling v. McKinney*, 509 U.S. 25, 35 (1993) (recognizing an Eighth Amendment deliberate indifference claim based on unwanted exposure to a future health risk). While the Eighth Amendment analysis of deliberate indifference claims traditionally involves both an objective and subjective component, the Supreme Court has strongly indicated that pretrial detained persons need only show that defendants’ conduct was objectively unreasonable. *See Richmond v. Huq*, 885 F.3d 928, 938 n.3 (6th Cir. 2018) (recognizing that the

Supreme Court’s holding in *Kingsley v. Hendrickson*, 135 S. Ct. 2466, 2473 (2015), which held that the appropriate standard for a pretrial detained person’s excessive force claim is “solely an objective one,” signaled a “shift in Fourteenth Amendment deliberate indifference jurisprudence [that] calls into serious doubt whether [the plaintiff] need even show that the individual defendant-officials were subjectively aware of her serious medical conditions and nonetheless wantonly disregarded them”). The objective component of a deliberate indifference claim is satisfied by showing that “absent reasonable precautions, an inmate is exposed to a substantial risk of serious harm.” *Richko v. Wayne Cty.*, 819 F.3d 907, 915 (6th Cir. 2016) (quoting *Amick v. Ohio Dep’t of Rehab. & Corr.*, 521 F. App’x. 354, 361 (6th Cir. 2013)).

The magnitude of the risk of death or severe illness from COVID-19 to Plaintiffs and other medically vulnerable detained persons is immense, and Defendants are aware of it. The disease has spread to the Jail and there are hundreds of confirmed infections. In April, over 70 percent of those tested at the Shelby County Jail tested positive for COVID-19.²⁵ It is likely that other individuals who are asymptomatic and untested are transmitting the disease unwittingly to others.²⁶ See Goldenson Decl. at ¶¶ 13, 36. Additionally, there have been several reported outbreaks of COVID-19 in correctional facilities throughout Tennessee.²⁷ And, as of May 15, 2020, at least

²⁵ See Yolanda Jones, *More Than 70% Of Inmates, Jailers At 201 Poplar Tested Positive For COVID-19*, DAILY MEMPHIAN (Apr. 29, 2020), <https://dailymemphian.com/article/13488/201-poplar-covid-testing-70-percent-positive>.

²⁶ Nathan W. Furukawa et al., *Evidence Supporting Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 While Presymptomatic or Asymptomatic*, EMERGING INFECTIOUS DISEASES (May 4, 2020), <https://doi.org/10.3201/eid2607.201595> (estimating that as many as half of all transmissions occur through an infected person with little to no symptoms).

²⁷ Samantha Max, *Investigation: How The Coronavirus Ran Rampant Through A Tennessee Prison*, WPLN NEWS, NASHVILLE PUBLIC RADIO (May 11, 2020), <https://wpln.org/post/investigation-how-the-coronavirus-ran-rampant-through-a-tennessee-prison/>; *A State-by-State Look at Coronavirus in Prisons*, THE MARSHALL PROJECT (last updated May 15, 2020), <https://www.themarshallproject.org/2020/05/01/a-state-by-state-look-at-coronavirus-in-prisons>.

2,574 people incarcerated in Tennessee state prisons have tested positive for COVID-19.²⁸ The law does not require that Plaintiffs and the Class members actually be exposed before their rights are violated. Potential exposure to a future harm is sufficient to state a constitutional claim and support a finding of irreparable injury. *Helling*, 509 U.S. at 33 (finding that “a remedy for unsafe conditions need not await a tragic event”).

Although not required to do so, Plaintiffs can also demonstrate that Defendants have been, and continue to be, subjectively indifferent to the risk that COVID-19 poses to medically vulnerable detained persons. The subjective component of deliberate indifference is satisfied by showing that “(1) the official being sued subjectively perceived facts from which to infer a substantial risk to the prisoner, (2) the official did in fact draw the inference, and (3) the official then disregarded that risk.” *Richko*, 819 F.3d at 915-16 (quoting *Rouster v. Cty. of Saginaw*, 749 F.3d 437, 446 (6th Cir. 2014)). “Because government officials do not readily admit the subjective component of this test, it may be demonstrated in the usual ways, including inference from circumstantial evidence. . . .” *Id.* at 916 (quoting *Dominguez v. Corr. Med. Servs.*, 555 F.3d 543, 550 (6th Cir. 2009)). Additionally, “a factfinder may conclude that a prison official knew of a substantial risk from the very fact that the risk was obvious.” *Farmer v. Brennan*, 511 U.S. at 825, 842 (1994).

It is plain that Defendants are aware of the risk to Plaintiffs and other medically vulnerable detained persons at high risk of severe illness or death from COVID-19, and their failure to implement precautions specific to medically vulnerable detained persons or to release them constitutes a blatant disregard of that risk. Defendants know there is an extremely high rate of infection among the Jail population. Defendants are aware of the age, medical histories, and

²⁸ See THE MARSHALL PROJECT, *supra* note 27.

current medical conditions of persons in the Jail. Defendants also know that older individuals and people with certain medical conditions are at high risk of severe infection or death from COVID-19. They know that social distancing is the only way to prevent the spread of COVID-19 to medically vulnerable individuals in the Jail and that this measure is not possible in the Jail. Because the necessary measures to safeguard Plaintiffs' health, and that of similarly situated medically vulnerable detained persons, cannot be implemented in the Jail, release is the only reasonable response to the deadly COVID-19 pandemic.²⁹ *See Malam v. Adducci*, No. 5:20-cv-10829, ECF No. 68, at 46-51 (E.D. Mich. May 12, 2020).

B. Defendants Are Violating the ADA and Section 504 of the Rehabilitation Act by Failing to Make Modifications for Disabled Subclass Members.

Plaintiffs are also likely to prevail on their claim that Defendants have denied Mr. Busby and the Subclass members the benefits of the services, programs, and/or activities of the Shelby County Jail by reason of their disabilities in violation of the ADA and Section 504 of the Rehabilitation Act. 42 U.S.C. § 12101 *et seq.*, 29 U.S.C. § 794. Plaintiffs in the Subclass are people with disabilities protected under the ADA and Rehabilitation Act in addition to their constitutional protections. 42 U.S.C. § 12132 states that:

no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.

The Jail is a public entity under federal disability rights laws. 42 U.S.C. § 12131(B) (“public entity” includes “any department, agency, special purpose district, or other instrumentality of a State or States or local government”); *see also Pa. Dep’t of Corr. v. Yeskey*, 524 U.S. 206, 210 (1998). The ADA “demands more of public entities than simply refraining

²⁹ On March 19, 2020, Defendants were also asked by the former director of Shelby County Pretrial Services to pursue all available options to release vulnerable people from the jail in light of the threat posed by COVID-19. *See Powell Decl.* at ¶ 6, Ex. A.

from intentionally discriminating against disabled individuals.” *Ability Ctr. of Greater Toledo v. City of Sandusky*, 385 F.3d 901, 910 (6th Cir. 2004). Put another way, public entities have an affirmative duty to accommodate disabled individuals. *Id.* at 910. This requires public entities to take affirmative steps to ensure that people with disabilities can participate in all of the entity’s programs, benefits, and services on an equal and equally safe basis as people without disabilities. 28 C.F.R. §§ 35.102(a), 35.130(a), (b); *Pierce v. District of Columbia*, 128 F. Supp. 3d 250, 266, 269 (D.D.C. 2015). A failure to make accommodations or modifications necessary to ensure that people with disabilities can participate equally is a type of disability discrimination. 28 C.F.R. § 35.130(b)(7); *Tennessee v. Lane*, 541 U.S. 509, 511 (2004) (noting that Congress recognized “that failure to accommodate persons with disabilities will often have the same practical effect as outright exclusion” or discrimination). The ADA also prohibits public entities from “utiliz[ing] criteria or methods of administration . . . [t]hat have the effect of subjecting qualified individuals with disabilities to discrimination on the basis of disability” or “[t]hat have the purpose or effect of defeating or substantially impairing accomplishment of the objectives of the public entity’s program with respect to individuals with disabilities.” 28 C.F.R. § 35.130(b)(3)(i)-(ii). By continuing to detain Plaintiffs with disabilities, Defendants’ policies and practices violate the ADA; they have failed in their duty to make modifications so Plaintiffs can benefit on an equal basis from the services, programs, or activities to which they are entitled.

Mr. Busby and the members of the Subclass are individuals with disabilities. The ADA defines disability as an impairment that substantially limits “major life activities.” 42 U.S.C. § 12102(1)(A).³⁰ They are “qualified” to participate in the Jail’s programs, services, and activities.

³⁰ “Major life activities” include “the operation of a major bodily function, including but not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder,

This means that people in the Jail are entitled to equal access to adjudication of their criminal cases, as well as adequate medical care and basic life necessities during incarceration.

Mr. Busby and other medically vulnerable people with disabilities detained at the Jail are facing exclusion and denial of equal participation in the Jail's programs, services, and activities, including the adjudication of their criminal cases, because of the Jail's violation of disability rights laws. Subclass members cannot benefit equally from the Jail's medical care, or provision of food and other basic necessities—or even benefit equally in the Jail's system of ensuring that people survive in good health to the adjudication of their cases—because of the high risks they face from COVID-19 and the Jail's failure to make modifications to mitigate those risks. *See* 28 C.F.R. Pt. 35, App. B (“[T]itle II applies to anything a public entity does.”); *Frailhat v. U.S. Immigration & Customs Enf’t*, No. EDCV 19-1546 JGB (SHKx), 2020 WL 1932570, at *26 (C.D. Cal. Apr. 20, 2020) (disabled people in ICE detention entitled to reasonable accommodations in order to participate in the “programmatic ‘benefit’” of the removal process). Subclass members cannot access these services or any others if they are severely ill, unconscious, or dead. Placing Plaintiffs and Subclass members at an extreme risk of severe illness, injury, or death has “the same practical effect of exclusion,” *Lane*, 541 U.S. at 531, and has the “effect of defeating or substantially impairing accomplishment of the objectives of the public entity’s program with respect to individuals with disabilities.” 28 C.F.R. § 35.130(b)(3)(i)-(ii). Given the fast-moving, life-threatening nature of the COVID-19 pandemic, and its effect on the Subclass, immediate release is the only reasonable modification that can bring Defendants into compliance with the ADA and Section 504.

neurological, brain, respiratory, circulatory, endocrine, and reproductive functions.” 42 U.S.C. § 12102(2).

V. Plaintiffs' Risk of Exposure to COVID-19 Constitutes Irreparable Harm.

Plaintiffs have experienced, and continue to experience, irreparable injury in the form of being subjected to substantial and unreasonable risk of harm from COVID-19, in violation of their Fourteenth Amendment rights. “When constitutional rights are threatened or impaired, irreparable injury is presumed.” *Obama for Am. v. Husted*, 697 F.3d 423, 436 (6th Cir. 2012); *Overstreet v. Lexington-Fayette Urban Cty. Gov.*, 305 F.3d 566, 578 (6th Cir. 2002) (citing *Connection Distrib. Co. v. Reno*, 154 F.3d 281, 288 (6th Cir. 1998)); *see also Rhinehart v. Scutt*, 509 F. App’x 510, 514 (6th Cir. 2018) (suggesting that allegations of “continuing violation of . . . Eighth Amendment rights” would trigger a finding of irreparable harm). Because Plaintiffs are likely to succeed on the merits of their constitutional claims, which themselves stem from exposure to an unacceptable risk of serious illness or death, “no further showing of irreparable injury is necessary.” *Mitchell v. Cuomo*, 748 F.2d 804, 806 (2d Cir. 1984). Even so, Plaintiffs can show an additional and obvious risk of irreparable harm in the form of serious illness or death should they contract COVID-19 and be forced to cope with infection while housed in the Jail.

VI. The Balance of Equities and the Public Interest Favor Plaintiffs.

When the government opposes the issuance of a temporary restraining order, the final two factors—the balance of the equities and the public interest—merge. *See Nken v. Holder*, 556 U.S. 418, 435 (2009). The public has an interest in preserving Plaintiffs’ constitutional rights and in protecting public health. *See Neinast v. Bd. of Trs. of the Columbus Metro. Library*, 346 F.3d 585, 594 (6th Cir. 2003) (recognizing public health and safety as legitimate government interests). The public interest is also “served by the enforcement of the ADA.” *Wilborn ex rel. Wilborn v. Martin*, 965 F. Supp. 2d 834, 848 (M.D. Tenn. 2013). The public interest thus requires that a TRO be granted in order to effectuate the ADA’s broad “remedial purposes.” *Hostettler v. College of Wooster*, 895 F.3d 844, 853 (6th Cir. 2018).

Significantly, releasing vulnerable individuals will reduce the burden on the local community and health infrastructure and release is clearly in the public interest. *See* Goldenson Decl. at ¶ 40; Fefferman Decl. at ¶¶ 8-9. Releasing vulnerable individuals also reduces the degree to which the Jail serves as a vector for further infections among others living and working at the Jail and the communities they return home to.³¹ Plaintiffs' release, subject to appropriate public health and safety precautions, will also promote Defendants' interest in ensuring the safety of others held at the Jail, as well as the staff there, and the community at large. *See* Goldenson Decl. at ¶ 41. In structuring their relief request, Plaintiffs have accounted for the prospect of public safety concerns and suggested a process by which any credible public safety risks may be addressed prior to release.³²

CONCLUSION

For the foregoing reasons, the Court should grant Plaintiffs' Motion.

Dated: May 20, 2020

Respectfully submitted,

/s/ Brice M. Timmons

³¹ *See* Lofgren, *supra* note 22; Powell Decl. ¶ 17.

³² As noted further in the Declaration of Bill Powell, there exist a number of alternatives to incarceration to mitigate any public safety risk posed by the release of any individual class member. Powell Decl. ¶¶ 11, 16.

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CERTIFICATE OF SERVICE

I, Brice M. Timmons, certify that on May 20, 2020, I caused a true and correct copy of the foregoing document to be filed electronically via the ECF system. I also caused a true and correct copy of the foregoing document to be served by hand on the Defendants.

Respectfully submitted,

/s/ Brice M. Timmons

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE
WESTERN DIVISION**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby County
Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF DR. NINA H. FEFFERMAN IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Nina Fefferman, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. I am over the age of 18 and I am competent to make this declaration.
2. I am a full Professor at the University of Tennessee, Knoxville in both the Department of Ecology and Evolutionary Biology and the Department of Mathematics. I am also the Director of the Mathematical Modeling Consulting Center at the National Institute for Mathematical and Biological Synthesis, and the Associate Director of the University of Tennessee One Health Initiative. My research focuses on complex adaptive systems, with a focus on the interplay between individual behavior and infectious disease epidemiology. Complex adaptive systems are systems that have a large number of components that interact and adapt such that the system is more complicated than its various parts—for example, living organisms, economies, or cities.
3. I have worked for the past 16 years as a researcher of the epidemiology, ecology, and evolution of infectious disease, pandemic preparedness, national biosecurity, and infrastructure protection. I hold a Master's degree in mathematics from Rutgers University and a PhD in Biology from Tufts University.
4. For over a decade, I was one of the primary researchers of the Command, Control, and Interoperability Center for Advanced Data Analytics, a U.S. Department of Homeland Security ("DHS") Center of Excellence, where I ran a research group focusing on the mathematics of both biosecurity and cybersecurity. As part of my role in that center, I actively contributed models and policy recommendations to DHS and its affiliate agencies for how to manage and mitigate pandemic threats from H1N1 2009 flu, Ebola in West Africa, and Zika virus. I have also consulted for various additional state and federal

agencies and private companies, domestically and abroad, in the area of outbreak management since 2004.

5. My C.V., attached as **Exhibit A**, includes a full list of my honors, experience, and publications.

6. I am donating my time reviewing materials and preparing this report. Any live testimony I provide will also be provided *pro bono*.

7. I have not previously testified as an expert at trial or by deposition.

I. Opinion

8. As an expert in infectious disease dynamics, it is my opinion that individuals who can safely and appropriately remain in the community should not be brought into the Shelby County Jail system at this time. Individuals who are already in those facilities should be evaluated for release. A careful evaluation of procedural and housing guidance should be created for those who remain in jail facilities until at least such time as the epidemic in the broader community has been contained to the extent that the public recommendations relax all measures of social distancing.

9. These steps could substantially reduce the number of COVID-19 infections in both the jail and the surrounding community, and reduce the risk that the Shelby County healthcare system becomes overwhelmed.

II. Risk of COVID-19 Within Jails and Wider Community

10. The health of persons in jail and the health of the rest of the community are inherently linked. The two populations must interact, because jails constantly release people into the wider community, admit new people from the wider community, and rely on staff and vendors who regularly mix with the wider community. Further, many jails

rely on local hospitals to treat incarcerated persons requiring advanced medical care, adding to the burden on the limited resources of local healthcare systems.

11. The existence of jail-driven disease dynamics result in worse health outcomes for the entire population. Cases of infection occurring within a jail cause additional cases of infection, hospitalization and deaths in the wider community.¹ This is not surprising; it reflects the features of the jail population and the jail system itself. The conditions of incarceration degrade the health of incarcerated people, leaving them more vulnerable to infection and severe outcomes from infection.² As an epidemiological result of decreasing individual robustness to disease, the vulnerability of the whole jail population increases.

12. Jails with disease prevalence higher than the general populations they serve will therefore act as sources of infection. Jails will continue to re-seed infection into the wider community, undermining the wider community's efforts to contain or mitigate outbreaks, or even introduce disease into non-infected communities. This cannot be resolved by ceasing release of people from jail, because a substantial number of staff and vendors regularly pass between the jails and the wider community.

¹ Eric Lofgren, Kristian Lum, Aaron Horowitz, Brooke Madubonwu, Nina Fefferman, *The Epidemiological Implications of Incarceration Dynamics in Jails for Community, Corrections Officer, and Incarcerated Population Risks from COVID-19*, MEDRXIV 2020.04.08.20058842, doi: <https://doi.org/10.1101/2020.04.08.20058842> 15–16 (May 4, 2020) (submitted for review).

² David C. McClelland, Alexander Charles, and Emilie Marks, *The need for power, stress, immune function, and illness among male prisoners*, 91 J. OF ABNORMAL PSYCH. 61, 68 (1982); Elizabeth T. Jacobs, and Charles J. Mullany, *Vitamin D deficiency and inadequacy in a correctional population*, 31 NUTRITION 659, 661-662 (2015); Fiona G. Kouyoumdjian, et al., *Do people who experience incarceration age more quickly? Exploratory analyses using retrospective cohort data on mortality from Ontario*, 12 PLOS ONE 1, 7 (2017); U.S. DEPARTMENT OF JUSTICE, SPECIAL REPORT, *Medical Problems of State and Federal Prisoners and Jail Inmates 2011–12* 1 (Revised Oct. 4, 2016), available at <https://www.bjs.gov/content/pub/pdf/mpsfjil112.pdf>.

13. Outbreaks of disease in jails are exacerbated by both the continuous introduction of potential new sources of infection (for example, as a result of new admissions or by staff) and by the maintenance of higher rates of contact amongst susceptible incarcerated people, due to the density and structure of jail housing arrangements. These dynamics drive the resulting efficacy of any proposed interventions.

14. The living conditions within the jail spread disease. Incarcerated people cannot practice social distancing due to the lack of space, overcrowding, or the requirement of constant supervision. Incarcerated people are moved in groups from jail to court or, where court proceedings are halted due to this pandemic, forced to remain in their cells or dorms in close proximity to each other. Incarcerated people often have limited access to products and equipment necessary to practice good personal hygiene, such as soap, or hand sanitizer or cleaning products.

15. There are strategies that can help to slow the spread of disease and improve individual health outcomes for people incarcerated within the jail system. For example, increased physical/social distancing measures; decreased population density; improved facility sanitation, access to free personal hygienic care, such as warm water, soap, free hand sanitizer, and free cleaning products; increased time spent outside; better nutrition and increased access to free medical care.

16. However, these improvements are unlikely to occur quickly enough or significantly enough to improve the epidemiological risks of COVID-19 for people living within the jail system or the wider community.

17. Further, it is becoming increasingly important to deter every single case of COVID-19 infection possible, including infected incarcerated people, so that the capacity of the local healthcare system in Shelby County, including ICU beds, does not become overwhelmed.

18. Tennessee's Safer at Home order expired on April 30, 2020 and many counties, including Shelby County, have commenced phased reopening of businesses.³ Shelby County commenced Phase 1 of its "Back to Business plan" on May 4, 2020, which included reopening offices, restaurants, hair salons and gym facilities.⁴

19. As social distancing mandates are lifted, it is reasonable to assume that within weeks the number of COVID-19 cases in the Shelby County community will increase substantially and that the number of serious COVID-19 cases requiring hospitalization will also increase. It is estimated that Shelby County currently has up to 480 ICU beds⁵ for a population of over 937,166 people.⁶ As of May 13, 2020, more than 70% of those ICU beds were occupied.⁷ An increase in COVID-19 cases could quickly overwhelm the limited capacity of the local healthcare system, even if the county implements some strategies to increase surge capacity. By preventing the infection of

³ TENNESSEE OFFICE OF THE GOVERNOR, *Gov. Lee Announces Safer at Home Order Will Expire April 30, Tennessee Begins Phased Reopening Next Week* (Apr. 20, 2020), <https://www.tn.gov/governor/news/2020/4/20/gov--lee-announces-safer-at-home-order-will-expire-april-30--tennessee-begins-phased-reopening-next-week.html>.

⁴ City of Memphis Mayor Jim Strickland, *Grid for Sector-Specific Phasing* (accessed May 16, 2020), <https://backtobusiness.memphistn.gov/phases/>.

⁵ Corinne S Kennedy, Samuel Hardiman and Ray Padilla, *How is reopening going? These 4 graphs show trends Shelby County officials are watching*, COMMERCIAL APPEAL (May 12, 2020), <https://www.commercialappeal.com/story/news/health/2020/05/12/shelby-county-reopening-depends-data-trends-heres-what-data-shows/3099716001/>.

⁶ 2020 U.S. CENSUS, *QuickFacts Shelby County, Tennessee*, July 1, 2019 Estimate, <https://www.census.gov/quickfacts/shelbycountytennessee>.

⁷ Corinne S Kennedy, Samuel Hardiman and Ray Padilla, *How is reopening going? These 4 graphs show trends Shelby County officials are watching*, COMMERCIAL APPEAL (May 12, 2020), <https://www.commercialappeal.com/story/news/health/2020/05/12/shelby-county-reopening-depends-data-trends-heres-what-data-shows/3099716001/>.

incarcerated people and especially those most vulnerable to serious illness, and therefore preventing the resulting infections that follow in the wider community, valuable resources, including ICU beds, can be preserved.

III. Conclusion and Recommendations

20. It is my professional judgment, based on the work I have done on mitigation and containment strategies for infectious disease in humans, including COVID-19 and other diseases (such as Zika virus, Tuberculosis, *Clostridium difficile* (C. diff.), and Pandemic flu), that reducing the population of Shelby County Jail by increasing rates of return home for individuals currently incarcerated in the jail system, and decreasing admissions into the jail system, will substantially reduce the number of COVID-19 infections in the jail and the community the jail serves. Successful implementation of these strategies will also clearly yield a reduction in the source of risk to incarcerated people's families and the broader community.

21. Corrections officials can increase the rate of release from jails by evaluating release options or transfer to home confinement for those most vulnerable to serious illness or death if they contract COVID-19. This should be coupled with a decreased rate of intake, since only increasing release rates can increase infection risks for incarcerated people, as well as the staff who work at the jails and court systems, and the broader community.

22. Decreasing population density achieves tremendous benefits. It decreases the probabilities of disease transmission and supports better health for incarcerated people, which also helps to protect the health of jail staff and the community at large. Decreasing population both directly decreases disease exposure, interrupting transmission dynamics,

and also facilitates many other interventions. By reducing transmission, it also preserves the precious resources of local healthcare systems.

23. It is my professional opinion that these steps are both necessary and urgent. Each additional day the jail system continues under current operational standards will cost lives in both the incarcerated population and the broader community each jail serves.

24. The health of people in jails and prisons, whether incarcerated or employed within, is inextricably linked with community health. It is essential to protect the health of individuals who are detained in and work in these facilities, for their sake and the sake of the wider community.

I declare under penalty of perjury that the foregoing is true and correct to the best of my ability.



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Exhibit A

Nina H. Fefferman

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Departments: Ecology and Evolutionary Biology &
 Mathematics
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 University of Tennessee
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Education

- 2005 PhD in Mathematical Biology from the Department of Biology, Tufts University.
 Advisor: J. Michael Reed
- 2001 MS in Mathematics from the Department of Mathematics, Rutgers University.
 Advisor: J. Beck
- 1999 AB in Mathematics from Princeton University

Positions

- 2020- Associate Director, UT One Health Initiative, University of Tennessee, Knoxville
- 2018- Director, Mathematical Modeling Consulting Center, University of Tennessee,
 Knoxville
- 2018 - Professor, Depts. of Mathematics & Ecology and Evolutionary Biology, University
 of Tennessee, Knoxville
- 2016 - 2018 Associate Professor, Depts. of Mathematics & Ecology and Evolutionary Biology,
 University of Tennessee, Knoxville
- 2015 - 2016 Program Director, Graduate Program in Ecology and Evolution, Rutgers University
- 2012 - 2016 Associate Professor, Dept. of Ecology, Evolution, and Natural Resources, Rutgers
 University
- 2011 - 2016 Assistant/Associate Professor, School of Public Health, University of Medicine and
 Dentistry of New Jersey
- 2008 - 2012 Assistant Professor, Dept. of Ecology, Evolution, and Natural Resources, Rutgers
 University
- 2007 - 2016 Research Assistant/Associate Professor, The Center for Discrete Mathematics and
 Theoretical Computer Science, Rutgers University
- 2005 - present Co-Director, Tufts University Initiative for the Forecasting and Modeling of
 Infectious Disease (InForMID), Tufts University School of Medicine
- 2005 - 2007 Visiting Research Associate, Center for Discrete Math and Theoretical Computer
 Science (DIMACS), Rutgers University
- 2005 Short Term Visitor, School of Natural Sciences, Institute for Advanced Study

Honors/Awards

- 2019 Invited Participant of the 11th. Triennial Invitational Choice Symposium
- 2019 Invited Performer/Participant, Stand Up Science – a public performance featuring stand-up
 comics and scientists discussing their work
- 2017 Invited Research Team Leader: AWM Women in Mathematical Biology Workshop
- 2016 Invited Speaker at the National Academy of Sciences Sackler Colloquium
- 2015 Coauthored an article chosen for the cover of *Phil Trans Roy Soc B* (issue 370.1665)
- 2012 Invited to Health Foo 2012

- 2011 Shared the Virginia Governor's Technology Award in the category of 'Cross-Boundary Collaboration in Modeling & Simulation' for our study 'Strategic Default in the Context of a Social Network: An Epidemiological Approach'.
- 2010 Speaker at TEDx Midatlantic
- 2009 Rutgers University Packard Fellow Nominee
- 2007 Coauthored an article chosen for the cover of *The Lancet Infectious Diseases* (vol. 7)
- Invited to give 22 Keynote, Plenary, or Public Lectures (see Invited Talks for details), over three continents

Media Coverage (interviews and coverage):

Television/Online Video Broadcasts:

The Washington Post, 2020
 BBC International, 2020
 WBIR News, 2019
 NJTV News, 2015
 Discovery Channel "How Stuff Works" (Season 2: "Games Unboxed"), 2011
 BBC World News Aug 21, 2007
 CBS News Aug 22, 2007
 Canada Television (CTV) Aug 21, 2007
 AT&T Tech Channel Sept, 2007

Radio Broadcasts:

NPR Marketplace, Mar 2020
 NPR WUOT Knoxville, Mar 2017
 PRI Studio 360, Sept 2016
 New Tech City, WNYC, Oct 2014
 PRI Studio 360, Sept 2014
 PRI Studio 360, Jan 2013
 BBC UK News, Aug 2007
 National Public Radio Podcast "Science Friday", Sept 2007
 AM900 CHML, Sept 2007
 National Public Radio "All Things Considered", Oct 2005

Print/Online Media (2005-present):

ABC News, ABS CBN News, ARS Technical, Canadian Press (via CBC), Cell, The Daily Mail (UK), The Daily Telegraph (Australia), The Economist, Forbes, Fox News, G1.com.br (Brazil), The Gist (Slate.com), O Globo (Brazil), Gazet Van Antwerpen (Belgium), La Jornada (Mexico), KevinMD, Knox News, Medical News Today, New Scientist, NU.nl (Netherlands), PC Gamer, Reuters, TIME, The Washington Post, Science News, Slate.com, the South African Star, Tech News World, Wired, Yahoo! Entertainment, You Made I *and many more...*

Research Support

Active

2020-2021	\$198,932	NSF RAPID – DEB Coupled Social and Epidemiological Networks and COVID-19	PI
2020-2022	\$359,849	DoD Minerva DECUR - The Topology of Interdependent Multi-Domain Behavioral Systems	PI
2017-2022	\$138,964	NSF IOS - Melding Mathematical and Theoretical	UT-PI

Models of Stress			
2017-2021	\$2,498,876	NSF EEID – Co-evolutionary Epidemiology of Avian Malaria	UT-PI
Completed			
2018-2020	\$196,628	SESYNC/NIMBioS Modeling Risk Perception, Vector-borne Diseases, and Environmental Integrity	PI
2016-2019	\$99,938	NSF EAGER – CISE – Distributed Anomaly Detection	PI
2018-2019	\$2,000	Haines Morris Grant – Internal UTK Competition	Co-PI
2016-2018	\$50,000	US - Israel Binational Science Foundation (BSF)	Co-PI
2016-2018	\$190,000	NSF RAPID – DEB – Modeling Zika Virus Control	PI
2015-2018	\$292,804	USFWS – White-Nose Syndrome Open Grant	Co-PI
2015-2017	\$21,003	NSF RAPID – Information & Intelligent Systems – Virtual Worlds and Experiential Learning	PI
2016-2017	\$75,000	US START Center – Leadership in Social Networks	PI
2017	\$30,000	Syngenta – Workshop Grant – Math of Agribusiness	Co-I
2016-2017	\$100,000	National Academies Keck Futures Initiative	Co-PI
2015-2017	\$130,000	NSF EAGER – DEB – Machine Learning for Co-Evolutionary Systems	Co-PI
2012-2016	\$1,228,053	Dept. of Homeland Security – CyberSecurity	PI
2014-2016	\$100,000	Dept. of Homeland Security – Next Generation Communications and Interoperability	Project PI
2009-2016	\$275,000	Dept. of Homeland Security – BioSecurity	Project PI
2011-2014	\$3,853,332	NSF EASM – Ocean Sciences – SocioEconomic Systems and Climate Change	Co-PI
2011-2012	\$22,500	UCDPER – Emergency Preparedness	Co-PI
2010-2012	\$384,000	Dept. of Homeland Security – Virtual Worlds and Experiential Education	Project PI
2010-2011	\$99,944	Dept. of Homeland Security – Self-Organizing Surveillance Systems	Project PI
2010	\$22,500	Dept. of Homeland Security – BioSecurity	Co-PI
2009-2012	\$299,886	NSF – DEB – ULTRA-Ex	Co-PI
2009-2011	\$89,318	UCDPER – Emergency Preparedness	PI
2009-2010	\$10,000	USDA CSREES Multi-State Research Fund – Vector-borne Disease Control	Co-I
2008	\$99,990	NIH NAID SBIR – Epidemiological Surveillance	PI
2008	\$5,000	Rutgers Climate and Environmental Change Initiative	PI
2008	\$75,000	Rutgers Academic Excellence Fellowship, Climate and Health Research Initiative	Co-I
2007	\$22,500	Dept. of Homeland Security – BioSecurity	PI
2007	\$22,500	Dept. of Homeland Security – BioSecurity	PI
2006	\$5,000	Tufts Summer Scholars Award – Epidemiology	PI
2003-2004	\$42,000	NIH R01 Supplement - Epidemiology	Co-PI
2003-2004	\$1,500	Tufts Institute of the Environment	Co-I
2003	\$500	MASI Student Travel Award	PI
2003	\$1,500	TIES Student Travel Award	PI

Consultancies

2020 American Civil Liberties Union (ACLU)

2020	The State of Vermont, Department of Education
2018	Ogilvy
2017-present	Humane Society International
2009-present	US Centers for Disease Control
2011-2012	Research Institute for Housing America Trust Fund
2006-2007	New Jersey, Department of Corrections
2004-2009	NIH U19 (Center PI: Gorski) T-cell Mediated Immunity
2004	National Defense University
2004	DARPA

Participation in Research Centers

Center	Position	Description of Role
NIMBioS <i>(National Institute for Mathematical and Biological Synthesis)</i>	Leadership Team	Active participant in working group, organizer of multiple tutorials, mentor for summer research experience for undergraduates, and founding director of the Mathematical Modeling Consulting Center
InForMID <i>(Tufts University Initiative for the Forecasting and Modeling of Infectious Diseases)</i>	Center Co-Director	Researcher and Administrative lead in the area of mathematical modeling of infectious disease epidemiology
CCICADA <i>(US Dept of Homeland Security Command, Control, and Interoperability Center for Advanced Data Analysis)</i>	Project PI	Principle Investigator into data analysis relating to social behavior in virtual/technologically enable environments, bio-security, and bio-inspired algorithms in cyber-security
DIMACS <i>(The Center for Discrete Mathematics and Theoretical Computer Science)</i>	Member	Active participant in working groups, collaborations, and conferences (including acting as organizer for multiple workshops/conferences/tutorials) in all areas of mathematical macrobiology
START <i>(US Dept of Homeland Security Center for the Study of Terrorism and Responses to Terrorism)</i>	Project PI	Principle Investigator working on understanding social behavior and algorithms driving the emergence of extremism and leadership in

Publications (peer reviewed):

* = a student or post-doctoral researcher advised by Fefferman during the research effort reported

Journal Articles:

Published or In Press

68. Lemanski*, N., S. Schwab, D. Fonseca, and N.H. **Fefferman**. (In press) Coordination Among Neighbors Improves the Efficacy of the Zika Control Despite Economic Costs. *PLoS Neglected Tropical Diseases*.
67. Wilson, S., S. Sindi, H. Brooks, M. Hohn, C. Price, A. Radunskaya, N. Williams, and N.H. **Fefferman**. 2020. How Emergent Social Patterns in Allogrooming Combat Parasitic Infections. *Frontiers in Ecology and Evolution*. 8:54.
66. DeNegre*, A., Myers*, K., and N.H. **Fefferman**. 2020. Impact of Strain Competition on Bacterial Resistance in Immunocompromised Populations. *Antibiotics*. 9(3):114
65. Myers*, K., A. Redere*, and N.H. **Fefferman**. 2020. How Resource Limitations and Household Economics May Compromise Efforts to Safeguard Children During Outbreaks. *BMC Public Health*. 20(1):1-14.
64. Suarez*, G., O. Udiani*, B. Allan, C. Price, S. Ryan, E. Lofgren, A. Coman, C. Stone*, L. Gallos*, and N.H. **Fefferman**. 2020. A Generic Arboviral Model Framework for Exploring Trade-offs Between Vector Control and Environmental Concern. *Journal of Theoretical Biology*. 490 (2020) 110161.
63. DeNegre*, A., Myers*, K., and N.H. **Fefferman**. 2020. Impact of Chemoprophylaxis Policy for AIDS-immunocompromised Patients on Emergence of Bacterial Resistance. *PLoS One*. 15(1): e0225861.
62. Gallos*, L., S. Havlin, G. Stanley, and N.H. **Fefferman**. 2019. Propinquity drives the emergence of network structure and density. *Proceedings of the National Academy of Sciences*. 116(41):20360-20365.
61. Stone*, C., S. Schwab*, D. Fonseca, and N.H. **Fefferman**. 2019. Contrasting the Value of Targeted vs. Area-Wide Mosquito Control Scenarios to Limit Arbovirus Transmission for Different Tropical Urban Population Centers. *PLoS Neglected Tropical Diseases*. 13.7: e0007479.
60. Myers*, K., A. DeNegre*, L.K. Gallos*, N. Lemanski*, A. Mayberry, A. Redere*, S. Schwab*, O. Stringham, & N.H. **Fefferman**. 2019. Dynamic Ad Hoc Social Networks in Improvised Intelligence / Counter-Intelligence Exercises: A Department of Homeland Security Red-Team Blue-Team Live-Action Roleplay. *Journal of Homeland Security and Emergency Management*. <https://doi.org/10.1515/jhsem-2018-0027>.
59. Suarez*, G.P., L.K. Gallos, and N.H. **Fefferman**. 2019. A Case Study in Tailoring a Bio-Inspired Cyber-Security Algorithm: designing anomaly detection for multilayer networks. *Journal of Cyber Security and Mobility*. 8(1):113-132.
58. DeNegre*, A., K. Myers*, M. Ndeffo, and N.H. **Fefferman**. 2019. Emergence of Antibiotic Resistance in Immunocompromised Host Populations. *PLoS One* 14 (2), e0212969.
57. Schwab*, S., C. Stone*, D. Fonseca, and N.H. **Fefferman**. 2019. (Meta)population Dynamics Determine Effective Spatial Distributions of Mosquito-Borne Disease Control. *Ecological Applications* 29(3): e01856.
56. Kebir*, A., N.H. **Fefferman**, and S.B. Miled. 2018. A general structured model of a hermaphrodite population. *Journal of Theoretical Biology*. 449:53-59.
55. Lemanski*, N.J. and N.H. **Fefferman**. 2018. Expanding the evolutionary theory of aging: honeybees as a test case for an optimal decision making model of senescence. *American Naturalist*. 191(6):756-766.
54. Schwab*, S., C. Stone*, D. Fonseca, and N.H. **Fefferman**. 2018. The importance of being urgent: the impact of surveillance target and scale on mosquito-borne disease control. *Epidemics*. 23:55-63.

53. Beckage, B., L. Gross, S. Metcalf, E. Carr, K. Lacasse, J. Winter, P. Howe, N. **Fefferman**, A. Zia, and T. Franck. 2018. Integrating human behavior and risk perception into a climate model. *Nature Climate Change*. 8:79–84.
52. Maslo, B., O. Stringham, A. Bevan, A. Brumbaugh, C. Sanders, M. Hall, and N.H. **Fefferman**. 2017. High Survival of Some Infected Bat Populations Veils a Persistent Extinction Risk from White-nose Syndrome. *Ecosphere*. 8(12):e02001.10.1002/ecs2.2001.
51. Stone*, C.M., S.R. Schwab*, D.M. Fonseca, N.H. **Fefferman**. 2017. Human movement, cooperation, and the effectiveness of coordinated vector control strategies. *Journal of the Royal Society Interface*. 14(133):20170336.
50. Lemanski*, N.J. and N.H. **Fefferman**. 2017. Coordination Between the Sexes Constrains the Optimization of Reproductive Timing in Honey Bee Colonies *Nature Scientific Reports*. 7:2740.
49. Egizi, A., N.H. **Fefferman**, and R. Jordan. 2017. Relative Risk of Infection with Ehrlichiosis Agents and Lyme Disease in an Area Where Both Vectors are Sympatric. *Emerging Infectious Diseases*. 23(6):939-945.
48. Greenbaum*, G. and N.H. **Fefferman**. 2017. Application of network methods for understanding evolutionary dynamics in discrete habitat. *Molecular Ecology*. DOI: 10.1111/mec.14059
47. Maslo, B., R. Valentin, K. Leu, K. Kerwin, A. Bevan, G.C. Hamilton, N.H. **Fefferman**, and D.M. Fonseca. 2017. ChiroSurveillance: The Use of Native Bats to Detect Invasive Agricultural Pests. *PLoS One*. 12(3), e0173321.
46. Robinson*, O.J., O.P. Jensen, M.M. Provost, S. Huang, N.H. **Fefferman**, A. Kebir and J.L. Lockwood. 2017. Evaluating the vulnerability of sex-changing fish to harvest: A game-theoretic approach. *ICES Journal of Marine Science*. 74(3):652-659.
45. Gallos*, L., M. Korczynski*, and N.H. **Fefferman**. 2017. Anomaly Detection Through Information Sharing Under Different Topologies. *EURASIP Journal on Information Security*. 2017:5. DOI:10.1186/s13635-017-0056-5.
44. Maslo, B., S. Gignoux-Wolfsohn, and N.H. **Fefferman**. 2017. Success of Wildlife Disease Treatment Depends on Host Immune Response. *Frontiers in Ecology and Evolution*. 5(28).
43. Lofgren*, E., A. Egizi, and N.H. **Fefferman**. 2016. Patients as Patches: Ecology and Epidemiology in Healthcare Environments. *Infection Control and Hospital Epidemiology*. 37(12):1507-1512.
42. Korczynski*, M., A. Hamieh*, J. H. Huh, H. Holm, S. R. Rajagopalan, and N. H. **Fefferman**. 2016. Hive Oversight for Network Intrusion Early Warning Using DIAMoND: A Bee-Inspired Method for Fully Distributed Cyber Defense. *IEEE Communications Magazine* 54(6):60-67.
41. Gallos*, L. and N.H. **Fefferman**. 2015. Simple and efficient self-healing strategy for damaged complex networks. *Physical Reviews E*. 92(5):052806.
40. Kebir*, A., N.H. **Fefferman**, S. Ben Miled. 2015. Understanding hermaphrodite species through game theory. *Journal of Mathematical Biology*. 71(6-7):1505-1524.
39. Gallos*, L., and N.H. **Fefferman**. 2015. The Effect of Disease-Induced Mortality on Structural Network Properties. *PLoS One*. DOI: 10.1371/journal.pone.0136704
37. Burkhalter*, J.C., N.H. **Fefferman**, and J.L. Lockwood. 2015. The impact of personality on the success of prospecting behavior in changing landscapes. *Current Zoology*. 61:557-568.
36. Robinson*, O., J. Lockwood, O. Stringham*, and N.H. **Fefferman**. 2015. A Novel Tool for Making Policy Recommendations Based on PVA:Helping Theory Become Practice. *Conservation Letters*. 8(3):190-198.

35. **Fefferman**, N.H. and E.N. Naumova. 2015. Dangers of vaccine refusal near the herd immunity threshold: a modelling study. *Lancet Infectious Diseases*. S1473-3099(15)70130-1
34. Maslo, B. and N.H. **Fefferman**. 2015. A Case Study of Bats and White-Nose Syndrome Demonstrating How to Model Population Viability with Evolutionary Effects. *Conservation Biology*. 29(4):1176-1185. DOI: 10.1111/cobi.12485.
33. Parham, P E. J. Waddock, G.K. Christophides, D. Hemming, F. Agosto, K. J. Evans, N.H. **Fefferman**, H. Gaff, A. Gumel, S. LaDeau, S. Lenhart, R.E. Mickens, E. Naumova, R. Ostfeld, P. Ready, M. Thomas, J. Velasco-Hernandez, E. Michael. 2015. Climate, Environmental, and Socioeconomic Change – Weighing up the Balance in Vector-Borne Disease Transmission. *Philosophical Transactions of the Royal Society B*. 370.1665 (2015): 20130551.
32. Egizi, A., N.H. **Fefferman**, and D. M. Fonseca. 2015. Evidence that implicit assumptions of “no evolution” of disease vectors in changing environments can be violated on a rapid timescale. *Philosophical Transactions of the Royal Society B*. 370.1665 (2015): 20140136.
31. Greening*, B., N. Pinter-Wollman, and N.H. **Fefferman**. 2015. Higher-Order Analysis of Information Sharing and Knowledge Capacity in Animal Social Groups *Current Zoology*. 61(1): 114–127.
30. Gallos*, L. and N.H. **Fefferman**. 2014. Revealing effective classifiers through network comparison. *Europhysics Letters*. 108(3): 38001.
29. Lofgren*, E.T., R.W. Moehring, D.J. Anderson, D.J. Weber, and N.H. **Fefferman**. 2014. A Mathematical Model to Evaluate the Routine Use of Fecal Microbiota Transplantation to Prevent Incident and Recurrent *Clostridium difficile* Infection. *Infection Control and Hospital Epidemiology*. 35(1):18-27.
28. Greening*, B. and N.H. **Fefferman**. 2014. Evolutionary Significance of the Role of Family Units in a Broader Social System. *Nature Scientific Reports*. 4: 3608
27. Seiler, M.J., Collins, A.J., and N.H. **Fefferman**. 2013. Strategic Mortgage Default in the Context of a Social Network: An Epidemiological Approach. *Journal of Real Estate Research* 35(4).
26. Robinson*, O.J., N.H. **Fefferman**, and J.L. Lockwood. 2013. How to effectively manage invasive predators to protect their native prey. *Biological Conservation* 165: 146-153.
25. **Fefferman**, N.H., and L.M. Romero. 2013. Can physiological stress alter population persistence? A model with conservation implications. *Conservation Physiology*. 1(1): cot012. doi: 10.1093/conphys/cot012
24. Moorthy, M., D. Castronovo, A. Abraham, S. Bhattacharyya, S. Gradus, J. Gorski, Y.N. Naumov, N.H. **Fefferman**, and E.N. Naumova. 2012. Deviations in influenza seasonality: odd coincidence or obscure consequence? *Clinical Microbiology and Infection*. 18(10):955-962.
23. Hock*, K. and N.H. **Fefferman**. 2012. Social organization patterns can lower disease risk without associated disease avoidance or immunity. *Ecological Complexity*. 12:34–42.
22. Hock*, K. and N.H. **Fefferman**. 2011. Violating Social Norms when Choosing Friends: How Rule-Breakers Affect Social Networks. *PLoS One*. 2011; 6(10): e26652
21. Hock*, K. and N.H. **Fefferman**. 2011. Extending the role of social networks to study social organization and interaction structure of animal groups. *Annales Zoologici Fennici*. 48(6):365-370.
20. Kafai, Y.B. and N.H. **Fefferman**. 2010. Virtual Epidemics as Learning Laboratories in Virtual Worlds. *Journal of Virtual Worlds Research*. 3(2):2-15.

19. Hock*, K., K.L. Ng, and N.H. **Fefferman**. 2010. Systems approach to studying animal sociality: individual position versus group organization in dynamic social network models. *PLoS One*. 5(12): e15789.
18. **Fefferman**, N.H. and E.N. Naumova. 2010. Innovation in Observation: A Vision for Early Outbreak Detection. *Emerging Health Threats*. 3:e6. doi: 10.3134/ehjt.10.006
17. Lofgren*, E.T., J.B. Wenger, N.H. **Fefferman**, D. Bina, S. Gradus, S. Bhattacharyya, Y.N. Naumov, J. Gorski, E.N. Naumova. 2010. Disproportional Effects in Populations of Concern for Pandemic Influenza: Insights from Seasonal Epidemics in Wisconsin, 1967-2004. *Influenza and Other Respiratory Diseases*. 4:205-212.
16. Phan, L., N.H. **Fefferman**, D. Hui, and D. Brugge. 2010. Impact of Street Crime on Boston Chinatown. *Local Environment*. 15(5):481-491.
15. Reed, J.M., N.H. **Fefferman**, and R.C. Averil-Murray. 2009. Vital Rate Sensitivity Analysis and Management Implications for Desert Tortoise. *Biological Conservation*. 14(12): 2813-3222.
14. Wilson-Rich, N., Spivak, M., **Fefferman**, N.H., Starks, P.T. 2009. Genetic, Individual, and Group Facilitation of Disease Resistance in Insect Societies. *Annual Reviews of Entomology*. 54:405-23.
13. **Fefferman**. N.H. 2008. Biological Experimentation *in silico*. *Annales Zoologici Fennici*, 45: 367-368.
12. Lofgren*, E., M. Senese*, J. Rogers* and N.H. **Fefferman**. 2008. Pandemic Preparedness Strategies for School Systems: Is Closure Really the Only Way? *Annales Zoologici Fennici*, 45: 449-458.
11. **Fefferman**, N.H. and K.L. Ng*. 2007. How Disease Models on Static Graphs Fail to Approximate Epidemics in Shifting Social Networks. *Physical Review E*. 76:031919. (*This article was selected for reprinting by the Virtual Journal of Biological Physics Research 2007*)
10. Lofgren*, E. and N.H. **Fefferman**. 2007. The Untapped Potential of Virtual Game Worlds to Shed Light on Real World Epidemics. *The Lancet Infectious Diseases*. 7:625–629. (*article content was the cover of the journal*)
9. Lofgren*, E., N.H. **Fefferman**, Y.N. Naumov, J. Gorski and E.N. Naumova. 2007. Influenza Seasonality: Underlying Causes and Modeling Theories. *Journal of Virology*, 81(11):5429-5436.
8. Lofgren*, E., N.H. **Fefferman**, M. Doshi and E.N. Naumova. 2007. Assessing Seasonal Variation in Multisource Surveillance Data: Annual Harmonic Regression. *Lecture Notes in Computer Science*. BioSurveillance 2007. eds D. Zeng et al. 4506:114-123.
7. **Fefferman**, N.H. and K.L. Ng*. 2007. The role of individual choice in the evolution of social complexity. *Annales Zoologici Fennici*, 44:58-69.
6. **Fefferman**, N.H., J.F.A. Traniello, R.B. Rosengaus and D.V. Calleri. 2007. Disease Prevention and Resistance in Social Insects: Modeling the Survival Consequences of Immunity, Hygienic Behavior and Colony Organization. *Behavioral Ecology and Sociobiology*, 61:565-577.
5. Starks, P.T.B. and N.H. **Fefferman**. 2006. Polistes Nest Founding Behavior: a Model for the Selective Maintenance of Alternative Behavioral Phenotypes. *Annales Zoologici Fennici*, 43:456-467.
4. **Fefferman**, N.H., and E.N. Naumova. 2006. Combinatorial Decomposition of an Outbreak Signature. *Mathematical Biosciences*, 202(2):269-287.
3. **Fefferman**, N.H. and J.M. Reed. 2006. A Vital Rate Sensitivity Analysis that is Valid for Non-Stable Age Distributions and for Short-Term Planning. *The Journal of Wildlife Management*, 70(3):649-656.

2. **Fefferman**, N.H., and P.T.B. Starks. 2006. A Modeling Approach to Swarming in Honey Bees. *Insectes Sociaux*, 53(1):37-45.
1. **Fefferman**, N.H., E.A. O'Neil, and E.N. Naumova. 2005. Confidentiality vs Confidence: The aggravation of aggregation as a remedy in public health. *Journal of Public Health Policy*, 26(4):430-449.

Under Review:

10. **Fefferman**, N.H., E.T. Lofgren, N. Li, P. Blue, D.J. Weber, and A.A. Yakubu. Fear, Access, and the Real-Time Estimation of Etiological Parameters for Outbreaks of Novel Pathogens. (Under Review)
9. **Fefferman**, N.H. and O. Udiani. Workforce Training, Deployment, Protection, and Management in the Wake of a Pandemic. (Under Review).
8. Lofgren, E. K. Lum, A. Horowitz, B. Madubonwu, K. Myers, and N. H. **Fefferman**. The Epidemiological Implications of Jails for Community, Corrections Officer, and Incarcerated Population Risks from COVID-19. (Under Review).
7. Feinberg, F., A. Patania, B. McShane, B. Falk, D. Larremore, E. Feit, J. Helveston, M. Small, M. Braun, N. **Fefferman**, and E. Bruch. A Framework for Studying Choices in Networks. (Under Review)
6. Beckage, B., K. Lacasse, J.M. Winter, N.H. **Fefferman**, F.M. Hoffman, L.J. Gross, S.S. Metcalf, T. Franck, E. Carr, A. Zia, and A. Kinzig. The Earth has humans, so why don't our climate models? (Under Review)
5. Udiani*, O., K. Lacasse, A. Zia, L. Gallos*, P. Zhong*, B. Beckage, E. Carr, T. Franck, L. Gross, F. Hoffman, P. Howe, A. Kinzig, S. Metcalf, J. Winter, and N.H. **Fefferman**. Recruitment and Mobilization for Social Movements: implications from network modeling. (Under Review)
4. Udiani*, O., and N.H. **Fefferman**. Could the Need for Rest Provide a Pathway for the Evolution of Division of Labor in Social Species? (Under Review)
3. Gignoux-Wolfsohn, S.A., Pinsky, M.L., Kerwin, K., Herzog, C., Hall, M., Bennett, A.B., **Fefferman**, N.H. and Maslo, B., Genomic signatures of evolutionary rescue in bats surviving white-nose syndrome. (Under Review)
2. Udiani*, O. and N.H. **Fefferman**. Has disease risk shaped the evolution of social complexity in insect societies? (Under Review)
1. Siewe*, N., B. Greening*, and N.H. **Fefferman**. The Potential Role of Asymptomatic Infection in Outbreaks of Emerging Pathogens (Under Review)

Book Chapters:

Published or In Press

10. **Fefferman**, N.H. When to Turn to Nature-Inspired Solutions for Cyber Systems. 2019. in Nature-Inspired Security and Resilience. eds. Eltoweissy, Elalfy, Fulp, and Mazurczyk. pp 29-50. The Institution of Engineering and Technology, London, UK.
9. Price, C.R. and N.H. **Fefferman**. 2019. A Preliminary Exploration of the Professional Support Networks the EDGE Program Creates. in A Celebration of the EDGE Program's Impact on the Mathematics Community and Beyond (pp. 317-325). Springer, Cham.
8. Brooks. H.Z., M.E. Hohn, C. Price, A.E. Radunskaya, S.S. Sindi, N.D. Williams, S.N. Wilson, N.H. **Fefferman**. 2018. Mathematical Analysis of the Impact of Social Structure on Ectoparasite Load in Allogrooming Populations. in Understanding Complex Biological Systems with Mathematics eds. A. Radunskaya, R. Segal, B. Shtylla. Association for Women in Mathematics Series, vol 14. pp 47-61. Springer

7. Williams, N.D., H.Z. Brooks, M.E. Hohn, C. R. Price, A.E. Radunskaya, S.S. Sindi, S.N. Wilson, and N. H. **Fefferman**. 2018. How Disease Risks Can Impact the Evolution of Social Behaviors and Emergent Population Organization. *in* Understanding Complex Biological Systems with Mathematics eds. A. Radunskaya, R. Segal, B. Shtylla. Association for Women in Mathematics Series, vol 14. pp 31-46. Springer
6. Korczynski*, M., A. Hamieh*, J.H. Huh, H. Holm, S. R. Rajagopalan, and N.H. **Fefferman**. 2017. DIAMoND: Distributed Intrusion/Anomaly Monitoring for Nonparametric Detection (invited extended version). *in* Security, Privacy and Reliability in Computer Communications and Networks. eds. K. Sha, A Striegel, and M Song. River Publishers Series in Communications. River Publishers.
5. **Fefferman**, N.H. and L.M. Fefferman. 2011. Mathematical Macrobiology: An Unexploited Opportunity in High School Education. *in* Biomath in the Schools. eds. M.B. Cozzens, and F.S. Roberts. DIMACS Series in Discrete Mathematics and Theoretical Computer Science. Vol 76. American Mathematical Society.
4. Jagai, J., N.H. **Fefferman** and E.N. Naumova. 2011. Waterborne Disease Surveillance. *in* Encyclopedia of Environmental Health. eds. J. Nriagu, S. Kcew, T. Kawamoto, J. Patz, and D. Rennie. Elsevier Science. 1st edition
3. Ji, S., W.A. Chaovalitwongse, N.H. **Fefferman**, W. Yoo, and J.E. Perez-Ortin. 2009. Mechanism-based Clustering of Genome-wide RNA Levels: Roles of Transcription and Transcript-Degradation Rates. *in* Clustering Challenges in Biological Networks. eds. S. Butenko, P.M. Pardalos, and W.A. Chaovalitwongse. World Scientific Publishing Company.
2. **Fefferman**, N.H. and J.F.A. Traniello. 2008. Social Insects as Models in Epidemiology: Establishing the Foundation for an Interdisciplinary Approach to Disease and Sociality. *in* Organization of Insect Societies: From Genome to Sociocomplexity eds J. Gadau and J. Fewell. Harvard University Press
1. MacLeod, N., N. Ortiz, N.H. **Fefferman**, W. Clyde, C. Schultze, and J. MacLean. 2000. Phenotypic Response of Foraminifera to episodes of global environmental change. *in* Biotic Response to Global Change. eds S.J. Culver and P. Rawson. Cambridge University Press

Edited Volumes:

1. **Fefferman**, N.H. (Ed.) (2008) *Annales Zoologici Fennici* 45(5)

Peer Reviewed Contributed Conference Papers:

8. Suarez*, G.P., L.K. Gallos, and N.H. **Fefferman**. 2018. A Case Study in Tailoring a Bio-Inspired Cyber-Security Algorithm: designing anomaly detection for multilayer networks. *2018 IEEE Security and Privacy Workshops (SPW)*. IEEE, 2018.
7. Fields, D. A., Kafai, Y. B., Giang, M. T., **Fefferman**, N., & Wong, J. 2017. Plagues and people: Mass community participation in a virtual epidemic within a tween online world. *Proceedings of the 12th International Conference on the Foundations of Digital Games*. DOI: 10.1145/3102071.3102108
6. Kafai, Y. B., Fields, D. A., Giang, M. T., **Fefferman**, N., Sun, J., Kunka, D., & Wong, J. 2017. Designing for massive engagement in a tween community: Participation, prevention, and philanthropy in a virtual epidemic. *In Interaction Design & Children Conference*. New York: ACM, 365-370. ISBN: 978-1-4503-4921-5
5. Fields, D. A., Kafai, Y. B., Giang, M. T., **Fefferman**, N., & Wong, J. 2017. The Dragon Swooping Cough: Mass community participation in a virtual epidemic within a tween online world. *In* B. Smith, M. Borge, E. Mercier & K. Y. Lim (Eds.) *Proceedings of the 12th International Conference*

on *Computer Supported Collaborative Learning*, Volume 2 (pp. 865-866). Philadelphia, PA: International Society of the Learning Sciences.

4. Fields, D. A., Kafai, Y. B., Sun, J., **Fefferman**, N., Ellis, E., DeVane, B., Giang, M. T., & Wong, J. 2016. The great dragon swooping cough: Stories about learning designs in promoting participation and engagement with a virtual epidemic. In Barany, A., Slater, S., & C. Steinkuehler (Eds.), *Proceedings of the Games + Learning + Society (GLS) 12.0 Conference* (pp. 419-424). Pittsburgh, PA: ETC Press.
3. Verma, S., A. Hamieh*, J. H. Huh, H. Holm, S. R. Rajagopalan, M. Korczynski*, and N. H. **Fefferman**. 2016. Stopping Amplified DNS DDoS Attacks Through Query Rate Sharing Between DNS Resolvers, to appear in the International Conference on Availability, Reliability and Security (ARES). (Note: this is the proceeding of a conference, not a journal, but is equivalent to journal publication for the field of computer science, however in keeping with the conventions of Biology, Fefferman is last author as PI on the sponsoring grant that funded the research.)
2. Korczynski*, M., A. Hamieh*, J.H. Huh, H. Holm, S. R. Rajagopalan, and N.H. **Fefferman**. 2015. DIAMoND: Distributed Intrusion/Anomaly Monitoring for Nonparametric Detection. *CCCN 2015: 24th International Conference on Computer Communications and Networks, IEEE, 2015*. (Note: this is the proceeding of a conference, not a journal, but is equivalent to journal publication for the field of computer science, however in keeping with the conventions of Biology, Fefferman is last author as PI on the sponsoring grant that funded the research.)
1. **Fefferman**, N.H., J. Jagai, and E.N. Naumova. 2004. Two - Stage Wavelet Analysis Assessment of Dependencies in Time Series of Disease Incidence. *Proceedings of the 2004 Conference of the International Environmetrics Society*

Research Mentoring

(bold = current)

Undergraduate Researchers:

Shyretha Brown, Danika Chari, Kaige Chen, Ian Clark, Liz Davis, Anne Eaton, Taylor Eisenstein, Brandon Grandison, Derek Hansen, David Haycraft, John Huffman, Ana Kilgore, John Kim, Edward Lee, Somair Malik, Andrew McConvey, Jeffrey Mandell, Zain Paracha, Luke Postle, Lauren Prince, Asya Pritsker, Cathy Reis, Jeremiah Rogers, Bolanle Salaam, Nicole Scholtz, Margaret Senese, Joshua Smith, Andrew Sohn, Kim Stanek, Johanna Tam, Colleen Thiersch, Elena Tsvetkova, Barton Willage, Immanuel Williams, Nakeya Williams, Barry Walker, Hannah Yin, Yi Ming Yu, Yongqing Yuan, Stefanie Yuen, James Xue, Bobby Zandstra

Graduate Researchers:

(Committee Member, or Advisor for work on funded research projects – not primary dissertation advisor; * = special case)

Kevin Aagard, Emma Bell, Carissa Bleker, Curtis Burkhalter, Jordan Bush, Huilan Chang, Erick Chastain, Fnu Eric Ngang Che, **Brittany Coppinger**, Ashley Crump, Kathryn Fair, Alison Golinski, **Stephen Grady**, Gili Greenbaum, Candice JeanLouis, **Hwayoung Jung**, Ariel Kruger, Di Li, Eric Lofgren*, Nicholas Lorusso, Adam Marszalek, Benjamin McClendon, Anthony Ogbuka, Paul Raff, Orin Robinson, Margarete Romero, Rajat Roy, Liliana Salvador, **Shelby Scott**, Tinevimbo Shiri, Brittany Stephenson, Alex Thorn, Rafael Valentine, Alex Villiard, Orion Weldon

(primary research advisor to)

Jessica Beck, **Kelly Buch**, Ashley DeNegre, **Jeff DeSalu**, Brad Greening, Natalie Lemanski, **Agnesa Redere**, Samantha Schwab, **Anna Sisk** (co-advised), Oliver Stringham, Karen Wylie

Post-Doctoral Researchers:

Dr. Erick Chastain, Dr. Lazaros Gallos, Dr. Manuel Garcia-Quisimondo, Dr. Ali Hamieh, Dr. Karlo Hock, Dr. Cindy Hui, **Dr. Jing Jiao**, Dr. Amira Kebir, Dr. Maciej Korczynski, Dr. Natalie Lemanski, Dr. Kellen Myers, Dr. Kah Loon Ng, Dr. Chris Stone, Dr. Nourridine Siewe (co-advised by Prof. S. Lenhart), Dr. Gonzalo Suarez, **Dr. Oyita Udiani**, Dr. Peng Zhong

Courses Developed and Taught (all courses developed from scratch)

- Advanced Mathematical Ecology II (MAT/EEB 682 – University of Tennessee, Knoxville) Spring 2017 and 2019
- Evolution, Disease, and Medicine (ENR110 – Rutgers University / EEB 310 – UT, Knoxville) Fall each year 2009 – 2014, Spring 2018 and 2020
- Conversational Bio-Mathematical Modeling (ENR 428 – Rutgers University/ EEB 475 – UT, Knoxville) Spring 2011 – 2014, 2020
- Problems in Ecology: Academic Pedagogy (ENR 601 – Rutgers University) Fall 2015
- *(Co-Developed and Taught)* Ethics & Professional Development in Ecology and Evolution (ENR 602 01 – Rutgers University) Spring 2013-2016 (exception – sabbatical Fall 2014-Spring 2015)
- Introduction to Modeling Ecology, Evolution, and Epidemiology (ENR 604 – Rutgers University) Spring each year 2010 – 2016 (exception – sabbatical Fall 2014-Spring 2015)
- Introduction to Epidemiological Modeling (ENR 603 – Rutgers University) Fall each year 2009 – 2012
- Elements of Data Analysis and Epidemiology (CMPH 343 – Tufts University School of Medicine) Spring 2006

Professional Memberships

Association for Women in Mathematics (AWM)
 Association for Women in Science (AWIS)
 Complex Systems Society (CSS)
 Institute of Electrical and Electronics Engineers (IEEE)
 International Union for the Study of Social Insects (IUSI)
 Society for Industrial and Applied Mathematics (SIAM)
 Society for Mathematical Biology (SMB)

Invited Presentations

*upcoming

2020

Public Interview: “Nina Fefferman,” You Made it Weird podcast

Public Lecture: “The Role of Applied Math in Real-time Pandemic Response: How Basic Disease Models Work,” NIMBioS Webinar Series, Knoxville, TN

Public Interview: “Math + Virus + Us,” Here We Are podcast and YouTube video.

2019

Public Lecture: “Vaccine Acceptance and Epidemic Risks,” Infinite Futures Event Series, Museum of Science and Industry, Chicago, IL.

“When to Turn to Biology for Inspiration in Systems Design,” DIMACS 30th Anniversary Conference, New Brunswick, NJ.

“Patients as patches: Ecological challenges from the epidemiology of healthcare environments,” ESA 2019, Louisville, KY.

“Math and Disease,” Possibilities in Postsecondary Education and Science (PIPES), UTK, Knoxville, TN.

Keynote Address: “Evolving Efficient Solutions: How simple natural systems solve the most complicated problems,” MBI Capstone Conference 2019, Columbus, OH (virtual)

Plenary Talk: “How AIDS prevalence impacts the emergence of antibiotic resistance in bacterial infections,” SIAM BMM 2019, Richmond, VA.

Public Lecture: “Math and Disease,” Stand Up Science, Farragut, TN.

“Biosurveillance and Homeland Security,” Princeton University, NJ.

“Understanding Social Communication Systems with Homology Theory,” Complex Systems Seminar, University of Michigan, Ann Arbor, MI.

“Going Against the Grain,” Women Empowered in STEM (WeSTEM) 2019, Champaign, IL.

“You’re Worth It: Job Negotiations,” Women Empowered in STEM (WeSTEM) 2019, Champaign, IL.

2018

“Math: A Critical, Treacherous Bridge Between Scientific Disciplines,” American Geophysical Union (AGU 2018), Washington DC.

“The Evolution of Social Complexity as Multi-Scale Feedback Control on Networks,” Systems Theory Lunch Colloquium, Harvard Medical School, Boston, MA.

“Saving Bats from Fungal Diseases with Linear Algebra,” Claremont Center for Mathematical Sciences Colloquium, Claremont, CA.

Plenary Talk: “Evolving Efficient Solutions: How simple natural systems solve the most complicated problems,” NIMBioS Undergraduate Research Conference 2018, Knoxville, TN.

Plenary Talk: “Linking Local Decisions with Global Outcomes in Networks: Case Studies in Behavior and Population Health” SIAM Life Sciences 2018, Minneapolis, MN.

“The mathematical biology of networks: from disease outbreaks to cyber-attacks,” TN Governor’s School, University of Tennessee, Knoxville, TN.

“Trans-disciplinary adventures in the mathematical biology of networks: from disease outbreaks to cyber attacks,” DIMACS REU, Rutgers University, Piscataway, NJ.

Public Webinar: “Social and Biological Networks: The Evolution of Social Systems,” US National Academies of Sciences, Engineering, and Medicine: Math Frontiers Webinar Series

2017

“Self-Diagnosing Networks,” Data Institute San Francisco Conference (DSCO17), San Francisco, CA.

Keynote: “Evolving Efficient Solutions: How simple natural systems solve the most complicated problems,” Workshop on Bio-Inspired Security, Trust Assurance, and Resilience (BioSTAR 2017), San Jose, CA.

“Wildlife Disease Management Outcomes May Depend on the Mechanism of Host Immune Response,” Distinguished Lecture Series in Immunology and Infectious Diseases, Center for Emerging & Re-emerging Infectious Diseases, School of Medicine, University of Washington, Pullman, WA.

2016

- “Evolving Healthy Populations,” International Symposium on Biomathematics and Ecology Education and Research 2016, Charlseton, SC.
- “Individuals, Societies, and Climate: Modeling motivations to change,” Oak Ridge National Laboratory Workshop on Human Activity at Scale in Earth System Models, Oak Ridge, TN.
- “Network Models in Epidemiology,” US-Canadian Institutes Epidemiology Summer School: Mathematical Modeling of Infectious Disease Spread, MBI, Columbus, OH.
- “The Invasion Ecology of Diseases in a Human Environment,” Arthur M. Sackler Colloquia of the National Academy of Sciences, Coupled Human and Environmental Systems, Washington DC.
- “Global Feedback Control on Centrality in Self-Organizing Systems”, Mathematical Biosciences Institute Workshop on the Control and Observability of Network Dynamics, MBI, Columbus, OH.
- “Zika Control: More Complicated than Hoped?” Next Einstein Forum, Dakar, Senegal.

2015

- “Linear Algebraic Tools in Conservation Ecology,” Simon A. Levin Mathematical, Computational and Modeling Sciences Center Seminar, Tempe, AZ.
- “Applications of Homology Theory to Animal Communication Systems,” Mathematics and Statistics Colloquium, Arizona State Univ., Tempe, AZ.
- “Trade-offs Between Collaboration and Infection Risk: Can ‘social distancing’ improve colony function?” Conference on Complex Systems 2015, Tempe, AZ.
- “The Benefits of Ongoing Dynamics in Self-Organizing Social Systems,” Conference on Collective Dynamics and Evolving Networks, Bath, UK.
- Plenary Talk:** Exploiting the Complexity of Identity to Infiltrate Clandestine Groups – Lessons from a LARP, CyDentity Conference, CCICADA, New Brunswick, NJ.
- “Incorporating Evolutionary Rescue into Population Viability Models,” Mathematics of Planet Earth: Workshop on Management of Natural Resources, Washington D.C.
- “Distributed Detection Algorithms for Real-Time Maritime CyberSecurity,” Joint CCICADA & AMU Conference on Maritime CyberSecurity, New Brunswick, NJ.
- “The Definition of Communication: One way biology and math people accidentally talk past each other and what we might be able to do to fix it,” Annual Meeting, Society for Integrative and Comparative Biology, West Palm Beach, FL.

2014

- “BioInspired Anomaly Detection: Social Insects and Network Security,” Dept. of Homeland Security Science and Technology HSARPA CyberSecurity Division Research and Development Showcase and Technical Workshop, Washington D.C.
- “n-TANGLE: a new method for comparing networks across scales” Workshop on Advances in Discrete Networks, Dept. of Mathematics, Univ. of Pittsburgh, Pittsburgh, PA.
- Keynote Address:** “Virtual Worlds Helping Public Health Preparedness,” New Jersey Health Care Quality Institute Annual Meeting, Trenton, NJ.
- “A Mathematician’s Role in Fighting Ebola,” Saint Ann’s School, Brooklyn, NY.
- “Provable Boundaries on Disease Outbreaks in Self-Organizing Social Networks,” The Duke University Mathematical Biology Colloquium, Durham, NC.
- Keynote Address:** “Designing your own role: Women in STEM,” Tufts University Graduate Student Luncheon for Women in Science, Medford, MA.
- “Division of Labor as an Adaptation to Combat Disease Risks?” The Seventh International Symposium on Biomathematics and Ecology: Education and Research (BEER), Claremont, CA.

- “How dynamic networks affect disease transmission,” The BioCircuits Institute, UCSD, San Diego, CA.
- “The Evolution of Social Complexity,” Plant Biology Dept. Seminar, Univ. of Vermont, Burlington, VT.
- “Provable Boundaries on Disease Outbreaks in Self-Organizing Social Networks,” Math Dept. Seminar, Univ. of Tennessee at Knoxville, TN.
- “Mathematics, Optimization, and the Evolution and Behavior of Social Insects,” Math Dept. Junior Colloquium, Univ. of Tennessee at Knoxville, TN.
- “The Life of a Mathematical Researcher,” Saint Ann’s School, Brooklyn, NY.
- “Mathematics, Optimization, and the Evolution and Behavior of Social Insects,” Social Insect Research Group Seminar, School of Life Sciences, Arizona State Univ., AZ.
- “N-tangle: A Network Comparison Method,” Workshop on Animal Social Networks, NIMBioS, TN
- 2013
- “Evolutionary pressures, Infectious Diseases, and Self-Organizing Social Systems,” Evolutionary Studies Seminar, Co-Sponsored by the Collective Dynamics of Complex Systems Research Group, the Undergraduate Math Club, Upsilon Pi Epsilon, and Pi Mu Epsilon, SUNY Binghamton, NY.
- “BioInspired Anomaly Detection,” DHS CyberSecurity PI Meeting, Arlington, VA.
- “Mathematics, Evolutionary Biology, Epidemiology, and National Security,” Saint Ann’s School, Brooklyn, NY.
- “Evolution of Reproductive Timing and Social Organization in Honey Bees,” Scientific Learning Forum at FMC, Ewing, NJ.
- “Crowd Sourcing WoW: A Case Study in Improving Pandemic Preparedness,” Annual George M. Sideris Biology Conference, LIU, Brooklyn, NY.
- 2012
- Public Lecture:** “Math, Complexity, and Social Groups: Using math to understand the nature of society,” Campus Life Enrichment Committee (CLEC) Lecture, Georgia Southern Univ., GA.
- “How and Why Static Approximations Can Fail to Give Adequate Insight into Processes on Dynamic Networks,” Math Dept. Colloquium, Georgia Southern Univ., GA.
- “Theoretical Worlds: An Exploration of Models and Model Systems,” Tufts Univ, Dept. of Civil and Environmental Engineering Seminar Series, Medford, MA.
- “Help, my avatar is sick!” Panel Talk, SXSW, Austin, TX.
- “WISE – Women, Ignore Silly Expectations!” 2012 WISE Conference, Texas A&M, TX.
- 2011
- “The Evolution of Social Complexity,” CUNY Initiative for the Theoretical Sciences Workshop on A Unified Theory of Evolution, CUNY, NY.
- “Balancing Workforce Productivity Against Disease Risks for Environmental and Infectious Epidemics,” Math Dept. Seminar, Univ. of Ghana, Legon, Ghana.
- “Selective Pressures from Disease on Social Behavior in Hosts,” DIMACS/MBI US - African BioMathematics Initiative: Workshop on Genetics and Disease Control, Elmina, Ghana.
- Plenary Address:** “The Future of Technology and Knowledge,” Next-Generation Communications Interoperability Workshop, Chicago, IL.
- “Virtual Worlds and Real Epidemics - Insights from WoW's Corrupted Blood Plague,” E-Virtuoses International Conference on Serious Games, Valenciennes, France.

Plenary Address: “Disease Robustness and Evolutionary Selective Pressures on Social Organization in Eusocial Insects,” Mathematical Biosciences Institute Workshop on Insect Self-Organization and Swarming, Ohio State Univ., OH.

“Hakkar’s Corrupted Blood Plague: How an Outbreak in WoW is Helping Epidemiologists Create Better Disease Models,” Game Developer’s Conference 2011, San Francisco, CA

“Exploring the Role of Behavior in Infectious Disease Dynamics: Mathematical Insights from World of Warcraft and other Virtual Worlds,” DIMACS/CCICADA Student Workshop on Where the Mathematical and Computational Sciences Meet Society, Rutgers University, NJ

“Multi-Dimensional Data and the Influence of Human Behavior in Biosurveillance for Infectious Disease Outbreaks,” Global Biosurveillance Conference: Enabling Science and Technology – 2nd Meeting in the Biological Threat Non-Proliferation Conference Series, Santa Fe, NM

2010

“Distributed Algorithms for Collective Visualization of Data,” Visualanalytics Workshop 2010, Imperial College London, UK

“The Importance of Behavioral Dynamics on Disease Burden,” Southern African Wildlife College, South Africa

“The Impact of Stress on Populations,” DIMACS Advanced Study Institute on Conservation Biology, Limpopo, South Africa

“Social Behavior in Virtual Worlds,” Panel Discussant – InPlay 2010, Toronto, Canada

“Self-Organizing Networks, Social Complexity, and Disease Dynamics,” Rensselaer Polytechnic Institute, NY

“Playing with Plague: Exploring Disease Dynamics from Within,” 2010 AAAS Annual Meeting, San Diego, CA

“Epidemiological Pressures on the Evolution of Social Complexity,” Mathematical Methods in Systems Biology, Tel Aviv, Israel

2009

“Information Theoretic Tool for Biosurveillance,” CCICADA Kickoff Meeting, Rutgers Univ., NJ

“Perspectives, Challenges, and Creativity in Understanding Behavioral Epidemiology,” Workshop on Behavioral Epidemiology, Rutgers Univ., NJ

“Evolutionary Implications of Epidemics on Social Behavior,” Evolutionary Genetics and Genomics at Rutgers, Rutgers Univ., NJ

Panel participant and Speaker on Popular Culture and Science, Sheffield Documentary Film Festival '09, Sheffield, United Kingdom

Keynote Address: “Epidemiological Insights from Virtual Worlds,” Life Science Dialogue Heidelberg, - Inaugural Conference, Germany

“Social Stability and Success: A new concept in self-organizing systems and preferential attachment,” Office of Naval Research Workshop on Complex Systems, Institute for Pure and Applied Mathematics, Los Angeles, CA

“The Impact of Household Capital Models on Targeted Epidemiological Control Strategies for Diseases with Age-Based Etiologies,” Makerere Univ., Kampala, Uganda

Keynote Address: “Hakkar's Corrupted Blood Plague: How an Outbreak in World of Warcraft is Helping Epidemiologists Create Better Disease Models,” Games for Health – Virtual Worlds, Boston, MA

“Network Representations and the Evolution of Social Complexity,” Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, NJ

- “Mathematical Optimization, Evolutionary Sociobiology, and Eusocial Insects,” Conference on The Power of Analysis, Princeton Univ., NJ
- “Mathematical Insights into Behavioral Epidemiology,” Univ. of Texas Health Science Center, Houston, TX
- “Basics of Mathematical Modeling,” Mosquito Modeling Made Easy Day, Center for Vector Biology, Rutgers Univ., NJ
- “Mathematical and Computational Methods in Epidemiology and BioSurveillance,” Jackson State University, MS
- “Mathematics, Optimization, and the Evolution and Behavior of Social Insects,” UNC, Chapel Hill, Applied Math, NC
- “Network models in Epidemiology and Sociobiology: Introduction, Overview, and Recent Advances,” Mathematical Sciences, RPI, NY

2008

- “Social Behavior and the Dynamics of Corrupted Blood,” Rice University/Games for Health, Houston, TX
- “Possible Selective Mechanisms for the Evolution of Disease-defensive Social Organizations,” Ecology and Evolution Seminar, Boston Univ., MA
- “Behavioral Epidemiology in Virtual Worlds: Exploiting the virtual experience,” Advanced Technology Applications for Combat Casualty Care 08; Telemedicine and Advanced Technologies Research Center Medical Simulation & Training Technology
- “Recent Advances in the What, How and When of Network Models in Infectious Disease Epidemiology,” SIAM 2008, CA
- “World of Warcraft Corrupted Blood Disease: Epidemiological Observations and Findings,” Games for Health, Baltimore, MD
- “Computational Ecology: The Evolution of Sociality,” Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, NJ
- Plenary Talk:** “Self-organizing social behavior and disease-defensive organizational strategies in social species,” Complexity 2008, Univ. Illinois Urbana, IL
- “From the Individual to the Population: Modeling the many levels of evolutionary fitness in social species,” Dept. of Ecology and Evolution and Natural Resources, Rutgers Univ., NJ
- “Individual Decisions, Group Efficiency,” ExxonMobil, Clinton, N.J.

2007

- Public Lecture:** “Virtual Games, Real Epidemics: Can We Learn Real-Life Lessons in BioDefense from Online Games?” Biosecurity, Biotechnology and Global Health Seminar Series, Program on Science and Global Security, Princeton Univ., NJ
- “Disease on Networks: Can Static Representations Capture the Full Complexity of a Dynamic Process?” NDSSL Seminar Series, Virginia Bioinformatics Institute, Virginia Tech, VA
- Public Lecture:** “Real People, Virtual Worlds: Watching a Plague Unfold,” Institute for Mathematical Sciences, National Univ. of Singapore
- “The Continued Mystery of Regular, Old, Annual Flu,” Workshop on Mathematical models for the Study of the Infection Dynamics of Emergent and Re-emergent Diseases in Humans, Institute for Mathematical Sciences, National Univ. of Singapore
- “Epidemics and the Evolution of Social Complexity,” Program in Ecology and Evolution Seminar Series, Rutgers Univ., NJ
- “Playing Games at School: Parents, Public Schools, and Children's Health,” DIMACS Workshop on Game Theory in Epidemiology and Ecology, Rutgers Univ., NJ

- “Analyzing Entropy in Biosurveillance,” U.S. Dept. of Homeland Security research briefing, Washington D.C.
- “Fantastic Problems in Mathematical Ecology,” DIMACS Bio-Math Connection Field Testers Workshop, Rutgers Univ., NJ
- “Does Securing Infrastructure Against Workforce-Depletion Depend on Whether the Risk is Environmental or Infectious?” DIMACS Workshop on Mathematical Modeling of Infectious Diseases in Africa, Univ. of Stellenbosch, South Africa
- “Social interaction and disease dynamics,” Workshop on Analysis of Time Series Data in Epidemiology, Tufts Univ. School of Medicine, Boston, MA
- “The Behaviors of Individuals and Populations,” Working Group on Spatio-Temporal and Network Modeling of Diseases, ICMS, Edinburgh, Scotland
- “The Evolution of Complexity in Already Social Groups,” Dept. of Ecology and Evolutionary Biology, Princeton Univ., NJ
- “Disease as a Selective Pressure and the Evolution of Social Complexity,” Applied Biomathematics, Stony Brook, NY
- “Vital Rate Sensitivity Analysis: A new method for population viability analysis - Two examples of its use,” Applied Biomathematics, Stony Brook, NY
- “Disease as a Selective Pressure and the Evolution of Social Complexity,” Morin Lab, Dept. of Ecology, Evolution and Natural Resources, Rutgers Univ., NJ

2006

- “The Role of Individual Choice in the Evolution of Social Complexity and its Implications Towards the Emergence of Zoonotic Infections,” DIMACS Computational and Mathematical Epidemiology Seminar, Rutgers Univ., NJ
- “Preparing Societal Infrastructure Against Disease-Related Workforce Depletion,” DIMACS Workshop on Facing the Challenge of Infectious Diseases in Africa, University of the Witwatersrand, South Africa
- “Fantastic Problems in Mathematical Ecology,” DIMACS Bio-Math Connect Institute for High School Teachers, Denver, CO
- “Societal Bio-defense - How Can we Accomplish Safety, Stability and Efficiency?” SIAM Annual Meeting, Boston, MA
- “When females should stop supporting lazy males: mathematics and honey bees?” DIMACS REU Seminar Series, Rutgers Univ., NJ
- “Selected Problems in Epidemiology.” DIMACS Tutorial on Data Mining and Epidemiology, NJ
- “How Would Termites Prepare for Pandemic Bird Flu and What Should We Learn From Them?” Joint Dept. of Entomology and Center for Infectious Disease Dynamics Seminar, Penn State Univ., PA
- “Different Scales of BioDefense - Can societies be both safe and efficient?” DIMACS Computational and Mathematical Epidemiology Seminar, Rutgers Univ., NJ

2005

- “Termites in the Nation’s Service,” DIMACS Computational and Mathematical Epidemiology Seminar, Rutgers Univ., NJ
- “Applications of Self-Organizing Systems to Epidemiology.” DIMACS Mixer Series, Rutgers Univ., NJ
- “Disease Signatures: A New Combinatorial Method for Epidemiology,” DIMACS Computational and Mathematical Epidemiology Seminar, Rutgers Univ., NJ
- “Fantastic Problems in Mathematical Ecology,” DIMACS Bio-Math Connect Institute for High School Teachers, Rutgers Univ., NJ

“How Complex Systems Can Simplify a Complex Problem: What Epidemiologists Can Learn From Insects,” Institute for Advanced Study, Center for Systems Biology Seminar Series, NJ

2004

“Incorporating Behavior and Social Structure into Pathogen Defense Strategies. Conference on Innate Immunity for Biodefense,” National Defense University's Center for Technology and National Security Policy (CTNSP) & the Department of Defense, Washington D.C.

Keynote Address: “Social Insects, Immunocompetence and Epidemiology: A Model System for Systems Modelers,” Vanderbilt Medical School, Dept. of Microbiology and Immunology Annual Retreat, TN

“Disease and Immunocompetence in Group-Living Animals: Implications for Human Epidemiology,” DARPA/DSO Workshop on Endogenous Defense, VA

Contributed Presentations

2008. “An Interdisciplinary Framework for Defining and Distinguishing Security Desiderata for Personally Sensitive Information,” DIMACS/DyDAn Workshop on Internet Privacy: Facilitating Seamless Data Movement with Appropriate Controls

2006. “A Vital Rate Sensitivity Analysis (VRSA) for Non-stable Age Distributions and Short-term Planning,” North American Ornithological Conference

2004. “A Mathematical Analysis of Reproductive Fission,” North American Section of the International Union for the Study of Social Insects (with published abstract)

2004. “Two-stage Wavelet Analysis Assessment of Dependencies in Time Series of Disease Incidence,” The 2004 Conference of the International Environmetrics Society (with published abstract)

2004. “Mathematical Modeling of Behavior and Ecology in Social Insects: Social mechanisms of pathogen control in termite colonies,” Departmental Research Seminar, Tufts Univ.

2003. “Modeling Waterborne Infectious Outbreaks: When, where and how bad will they be?” The 2003 Conference of the International Environmetrics Society (with published abstract)

2003. “Modeling Disease Resistance through Social Interactions in Termites,” The 2nd Conference on the Mathematics and Algorithms of Social Insects (with published abstract)

Service (external to Home Institution)

Ongoing	Referee of papers for <i>American Naturalist</i> , <i>Annales Zoologici Fennici</i> , <i>Behavioral Ecology and Sociobiology</i> , <i>Biological Conservation</i> , <i>BMC Evolutionary Biology</i> , <i>Bulletin for Mathematical Biology</i> , <i>Canadian Biosystems Engineering</i> , <i>Conservation Letters</i> , <i>IMA Journal of Applied Mathematics</i> , <i>Journal of Biological Dynamics</i> , <i>Journal of Infectious Diseases</i> , <i>Journal of Insect Science</i> , <i>Journal of Nonlinear Dynamics</i> , <i>Mathematical Biosciences</i> , <i>Journal of Medical Internet Research</i> , <i>Journal of the Royal Society Interface</i> , <i>Malaria Journal</i> , <i>Nature</i> , <i>Nature Scientific Reports</i> , <i>Parasites and Vectors</i> , <i>PeerJ</i> , <i>Physical Reviews X</i> , <i>PLoS Computational Biology</i> , <i>PLoS One</i> , <i>PloS Medicine</i> , <i>PNAS</i> , <i>Vaccine</i> , <i>Vector-Borne and Zoonotic Diseases</i>
2020	Deputy Editor <i>PLOS Computational Biology</i>
2019-2021	Director of Development, Enhancing Diversity in Graduate Education (EDGE) Foundation
2019	Guest Editor <i>PLOS Computational Biology</i>
2019	Co-Organizer SIAM Network Science Annual Meeting (NS 19)
2018	NSF ad hoc proposal reviewer

2018 Burroughs Wellcome Fund grant proposal reviewer

2018 Co-Organizer IEEE Symposium on Security and Privacy, entitled: 3rd Workshop on Bio-inspired Security, Trust, Assurance and Resilience (BioSTAR 2018)

2017-cont. Member of the Leadership Team of the National Institute for Mathematical and Biological Synthesis

2017 Co-Organizer NIMBioS Workshop on Applying Optimization Techniques to Agricultural Problems

2017 ARO grant proposal reviewer

2016 Co-Organizer MBI (the Mathematical Biosciences Institute at Ohio State) Workshop on Generalized Network Structures and Dynamics

2016 Co-Organizer MBI (the Mathematical Biosciences Institute at Ohio State) Emphasis Semester on Dynamics of Biologically Inspired Networks

2014 ARO grant proposal reviewer

2013- 2016 Member of Scientific Advisory Board for MBI (the Mathematical Biosciences Institute at Ohio State)

2013 NIH grant proposal reviewer

2013-2016 Co-Organizer NIMBioS Working Group on Climate Change and Vector-borne Diseases

2013-2019 Invited Participant Joint NIMBioS-SESYNC Working Group on Human Risk Perception and Climate Change

2012 Invited Grant Proposal Reviewer for the United States – Israel Binational Science Foundation

2012 US Environmental Protection Agency FIFRA Scientific Advisory Panel (SAP) on Pollinator Risk Assessment Framework

2011 Invited Participant - External Expert Review Panel for Bioscience Research and Development at Los Alamos National Laboratory

2011 Program Committee Member, The Third International UKVAC Workshop on Visual Analytics (VAW 2011)

2011 NSF grant proposal reviewer

2011 Co-Organizer DIMACS/MBI US - African BioMathematics Initiative: Advanced Study Institute and Workshop on Genetics and Disease Control

2010 Organizer of the DIMACS Mini-Workshop on ‘Emergent Properties of Dynamic Biological Networks’

2010 Lecturer at DIMACS/MBI US - African BioMathematics Initiative: Workshop and Advanced Study Institute on Conservation Biology

2010 Organizer of the DIMACS Mini-Workshop on ‘Game-theoretic Approaches to Medical Prognosis’

2010 NSF grant reviewer/panel participant

2010 Invited International Reviewer for Centre of Excellence Grants for the Australian Research Council

2010 Co-Organizer of the DIMACS Workshop on Modeling and Mitigation of the Impacts of Extreme Weather Events to Human Health Risks

2009 Co-Organizer DIMACS Workshop on Economic Epidemiology, Makerere Univ., Kampala, Uganda

2009 NSF grant reviewer/panel participant

2009 Co-Organizer/ Program Co-Chair Workshop on Economic Epidemiology, Makerere Univ., Kampala, Uganda

2009 Co-Organizer Mosquito Modeling Made Easy Day at the N.J. Center for Vector Biology

2008-2010 Member Chief Editorial Committee for the DIMACS Book Series

2008-2010 Member Editorial Board of DIMACS Educational Modules Series

2008 Invited organizer SIAM mini-symposium on Network Models of Infectious Disease
 2008 Ran the Reconnect Program on Biosurveillance at DIMACS – a week long short course for teaching faculty at liberal arts institutions on an advanced topic to expand their own and their students research opportunities
 2007 Mentor to two teams of researchers for Department of Homeland Security funded Research Experience for those at Minority Serving Institutions
 2006-2016 Advisory/Editorial Board Member for the journal *Annales Zoologici Fennici*
 2004 Subject Matter Expert on Innate Immunity and Biodefense, National Defense University
 2004 Research Consultant, DARPA (via Strategic Analysis, INC.)
 2003 Developed algorithm for Managing Endangered Species Habitat in Hawaii - MESHH software package (Reed, J.M., N.H. Fefferman, C.S. Elphick, and M. Silbernagle. 2004)
 2000-2002 Technical Editor (Cryptography) to MacMillan Press
 1999 Invited Reviewer of AES submission to the National Institute of Standards and Technology, later published as The Twofish Encryption Algorithm, Schneier, et al, 1999, John Wiley & Sons Inc.

Service (internal to Home Institution)

2020 Advisor to the COVID-19 Re-Imagining Fall Task Force
 2019-cont. Head of Graduate Admissions, Program in Ecology and Evolutionary Biology
 2019 Research Mentor for the NIMBioS Summer Research Experiences (SRE) for Undergraduates
 2019 Co-Organizer Tutorial on Networks at NIMBioS
 2018 Serve on departmental Promotion and Tenure Committee for Prof. O'Meara
 2018-cont. Serve on Faculty Mentoring Committee for Prof. Kivlin
 2017-cont. Served as Departmental Coordinator for University Future Faculty Program
 2017 Research Mentor for the NIMBioS Summer Research Experiences (SRE) for Undergraduates
 2017 Lecturer for Joint 2017 MBI-NIMBioS-CAMBAM Summer Graduate Program
 2016-2017 University of Tennessee, Knoxville Department of Ecology and Evolutionary Biology Search Committee Member and Diversity Advocate (Ecosystem Ecology Search)
 2016-2017 University of Tennessee, Knoxville Department of Mathematics Search Committee Member (Mathematical Biology Search)
 2016-cont. University of Tennessee, Knoxville Program in Ecology and Evolutionary Biology Graduate Affairs Committee Member
 2015-2016 Rutgers University Biological Sciences Area Committee Member
 2014 Rutgers University EENR Department Wildlife Biology Faculty Search Committee Member
 2010 Co-Mentor to a team of researchers for Department of Homeland Security funded Research Experience for those at Minority Serving Institutions
 2009-2010 Organizer of the EENR seminar series
 2009 Organizer of the DIMACS Workshop on Behavioral Epidemiology
 2009-2010 Member E&E Executive Committee
 2008-2012 Member of EENR Curriculum Committee
 2008-2010 Member Chief Editorial Committee for the DIMACS Book Series
 2008-2010 Member Editorial Board of DIMACS Educational Modules Series
 2007-2009 Member of the Rutgers University Advisory Board to the Office for the Promotion of Women in Science, Engineering and Mathematics

2006-2015 Research Advisor for Rutgers Univ. DIMACS REU
2005-2007 Co-organizer DIMACS seminar series Mathematical and Computational Epidemiology

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby County
Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF DR. JOE GOLDENSON IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Joe Goldenson, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. I am over the age of 18 and I am competent to make this declaration.
2. I am a physician who has worked in health care for prisoners for 33 years. I worked for Jail Health Services of the San Francisco Department of Public Health for 28 years. I was the Director and Medical Director for 22 of those years. In that role, I provided clinical services, managed public health activities in the San Francisco County jail, and administered the correctional health enterprise, including its budget, human resources services, and medical, mental health, dental, and pharmacy services.
3. I served as a member of the Board of Directors of the National Commission on Correctional Health Care for eight years and was past President of the California chapter of the American Correctional Health Services Association.
4. I held an academic appointment as an Assistant Clinical Professor at the University of California, San Francisco, for 35 years.
5. I have worked extensively as a correctional health medical expert and court monitor. I have served as a medical expert for the United States District Court for the Northern District of California for 25 years. I am currently retained by that Court as a medical expert in *Plata v. Newsom*, Case No. 3:01-cv-01351 (N.D. Cal.), to evaluate medical care provided to inmate patients in the California Department of Correctional Rehabilitation. I have also served as a medical expert/monitor at Cook County Jail in Chicago and Los Angeles County Jail, at other jails in Washington, Texas, and Florida, and at prisons in Illinois, Ohio, and Wisconsin.
6. My resume is attached as Exhibit A.

I. COVID-19

7. COVID-19 is a disease that has reached pandemic status. As of May 19, 2020, there are 4,731,458 confirmed cases of COVID-19 worldwide; COVID-19 has caused 316,169 deaths.¹ Outbreaks have occurred within the United States in regions like New York, New Jersey, Louisiana, Michigan, and Illinois. As of May 19, 2020, there are 1,477,516 confirmed cases of COVID-19 and 89,272 COVID-19 related deaths within the United States.²

8. COVID-19 is a serious illness caused by SARS-CoV-2, a novel coronavirus (“the virus”). In severe cases, COVID-19 can require hospitalization and lead to respiratory failure and death. Symptoms may appear two to 14 days after exposure to the virus and may include fever, cough, and shortness of breath or difficulty breathing. While more than 80% of cases are mild, overall some 20% of cases will have more severe disease requiring medical intervention and support.

9. Patients who suffer from serious disease may progress to Acute Respiratory Distress Syndrome (ARDS), which is a type of respiratory failure. Many patients suffering from ARDS will require mechanical ventilation. ARDS has a 30 percent mortality rate overall, and a higher mortality rate in people with other medical conditions.

10. Certain populations are particularly vulnerable to severe cases of COVID-19. The case fatality rate and need for advanced medical intervention and support increase significantly with advancing age in people aged over 50 and for people of any age with certain underlying medical conditions (the “medically vulnerable”). The Centers for Disease Control and Prevention (“CDC”) identified underlying medical conditions that may increase the risk of serious COVID-

¹ WORLD HEALTH ORGANIZATION, *Coronavirus disease (COVID-19) Situation Report – 116* 14 (May 15, 2020), https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200515-covid-19-sitrep-116.pdf?sfvrsn=8dd60956_2.

² *Id.* at 7.

19 for individuals regardless of age, including: blood disorders, chronic kidney or liver disease, compromised immune system, endocrine disorders, diabetes, metabolic disorders, heart and lung disease, neurological and neurologic and neurodevelopmental conditions, and severe obesity.³

11. At this time, there is no vaccine to prevent COVID-19 and there is no known cure or anti-viral treatment available.

12. The virus that causes COVID-19 is highly infectious. It is transmitted from person to person via airborne droplets. The droplets are released by infected individuals when they cough, sneeze or talk and can infect other persons in close proximity (within approximately six feet). The infected droplets can survive in the air for up to three hours. The virus may also be transmitted when a person touches a surface or object that has the virus on it and then touches their own mouth, nose, or possibly eyes. Infected droplets can survive on surfaces for varying time periods. For example, studies suggest that the virus can survive for up to 24 hours on cardboard, and for two to three days on plastic or stainless steel.

13. A significant number of those who are infected with COVID-19 do not exhibit any symptoms. Similarly, some people may only experience mild symptoms. However, these asymptomatic and mildly symptomatic individuals can, and do, transmit the virus to others, which has further contributed to its rapid spread. Recognizing the high risk of transmission posed by asymptomatic individuals, the CDC recommended everyone in the United States wear cloth face coverings when in public settings where social distancing is difficult to maintain.⁴

³ CENTERS FOR DISEASE CONTROL AND PREVENTION, *People Who Are at Higher Risk for Severe Illness* (May, 14 2020), <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>.

⁴ CENTERS FOR DISEASE CONTROL AND PREVENTION, *Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission* (Last Updated Apr. 3, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>.

14. The only known ways to prevent the spread of COVID-19 are maintaining six feet of physical distance between individuals (“social distancing”), frequent and thorough handwashing, and frequent decontamination of surfaces.

II. The Risks of COVID-19 in Detention Facilities

15. COVID-19 poses a very serious risk to detainees, staff, and other visitors to detention facilities such as prisons or jails. It is uncontroversial that detention facilities, including jails like Shelby County Jail, are associated with high transmission rates for infectious diseases, including tuberculosis, multi-drug resistant tuberculosis, MRSA (methicillin resistant staph aureus), and viral hepatitis.

16. Living conditions in prisons and jails exacerbate the spread of infectious diseases, particularly diseases like COVID-19 that are transmitted by airborne droplets. In these facilities, large numbers of people are closely confined and are physically unable to practice social distancing, which the CDC has identified as a “cornerstone of reducing transmission of respiratory diseases such as COVID-19.”⁵ Further, detainees often have limited access to hygiene and personal protective equipment such as soap, hand sanitizer, masks, and gloves.

17. People in jails and prisons typically sleep in close quarters, for example, a single room may contain multiple bunkbeds with limited ventilation. A single cell can house multiple people. Detainees are generally forced to share toilets, sinks, and showers without disinfection between use. Common areas are shared by large groups of people. The preparation and distribution of food is often centralized, sometimes using a single kitchen or cafeteria for an entire facility.

⁵ CENTERS FOR DISEASE CONTROL AND PREVENTION, *Interim Guidance on Management of Coronavirus Disease 2019 (COVID-19) in Correctional and Detention Facilities*, (Last Updated May 7, 2020) <https://www.cdc.gov/coronavirus/2019-ncov/community/correction-detention/guidance-correctional-detention.html>.

18. Additionally, the likelihood of exposure is heightened due to the constant “churn” (*i.e.*, exit and entry) of both staff and detainees in jails, and population mixing of staff and detainees. Staff have regular direct physical contact with detainees, for example, when handcuffing or removing handcuffs from detainees who are entering or exiting the facility.

19. Outbreaks of COVID-19 have occurred in detention facilities in the United States, for example at the Lompoc facility near Los Angeles, California,⁶ the Marion Correctional Facility in Ohio,⁷ the Bledsoe Prison in Pikeville, Tennessee⁸, and the Rikers Island detention facility in New York City⁹.

20. Jails and prisons generally lack the medical care infrastructure and resources required to cope with an outbreak of infectious disease. Some do not have onsite medical facilities at all. Medical facilities within jails and prisons are generally designed and resourced to administer medical care for the ordinary day to day needs of detainees. They are not designed or equipped to cope with an influx of cases of a highly infectious disease like COVID-19, especially in addition to the regular case load. Medical facilities within detention facilities are generally not designed or equipped to administer the resource-intensive advanced care required by patients with serious cases of COVID-19.

⁶ Tyler Hayden, *Lompoc Prison Explodes with Active COVID-19 Cases*, (May 13, 2020) <https://www.independent.com/2020/05/13/lompoc-prison-explodes-with-active-covid-19-cases/>.

⁷ Josiah Bates, *Ohio Began Mass Testing Incarcerated People for COVID-19. The Results Paint a Bleak Picture for the U.S. Prison System*, TIME (Apr. 22, 2020), <https://time.com/5825030/ohio-mass-testing-prisons-coronavirus-outbreaks/>.

⁸ Bill Hutchinson, *COVID-19 outbreak infecting over 500 prisoners may have come from staff: Medical director*, ABC NEWS (Apr. 28, 2020), <https://abcnews.go.com/US/covid-19-outbreak-infecting-500-prisoners-staff-medical/story?id=70382322>.

⁹ Miranda Bryant, *Coronavirus spread at Rikers is a 'public health disaster', says jail's top doctor*, THE GUARDIAN (Apr. 1, 2020), <https://www.theguardian.com/us-news/2020/apr/01/rikers-island-jail-coronavirus-public-health-disaster>.

21. Jails and prisons often need to rely on external facilities such as hospitals and emergency departments to provide intensive medical care. This places additional strain on the resources of those facilities which may already be overwhelmed during a pandemic.

22. During an outbreak, jail staff also become infected and fall ill, and therefore cannot report to work. This can result in understaffing of crucial roles, such as medical staff, cleaning staff and security staff, placing further strain on the facility's ability to cope with the outbreak.

23. Prison outbreaks can pose serious risks to communities beyond the prison. For example, the tuberculosis epidemic that broke out in New York City in the early 1990s began in jails and was spread to the community by jail employees who became infected and then returned home.¹⁰ The severe epidemic of tuberculosis in prisons in Central Asia and Eastern Europe was demonstrated to increase community rates of tuberculosis in multiple states in that region.¹¹

24. Medically vulnerable people within jails and prisons are at even higher risk than other detainees. As described herein, compared to the general population, they are at a higher risk of death or severe illness from COVID-19. They also require ongoing medical care for their underlying medical conditions. However, medical units within detention facilities may not have the resources to administer adequate care during the course of a pandemic. Failure to provide those individuals with adequate medical care for chronic underlying health conditions will also result in increased risk of morbidity and mortality related to those underlying conditions. In turn, that results in increased risk of COVID-19 infection and increased risk of COVID-19-related morbidity and mortality if they do become infected.

¹⁰ LEE B. REICHMAN, EARL S. HERSHFIELD, *TUBERCULOSIS: A COMPREHENSIVE INTERNATIONAL APPROACH* 650–652 (2d ed. 2000).

¹¹ David Stuckler et al., *Mass incarceration can explain population increases in TB and multidrug-resistant TB in European and central Asian countries*, 105 *Proc. Nat'l Acad. Sci. U S A.*, 13280, 13280 (2008).

25. While jails and prisons should take all measures possible to reduce exposure to infection in detention, given the rapid spread of COVID-19, it is now likely impossible to achieve and sustain those measures quickly enough to mitigate the risk of transmission. It is therefore an urgent priority to reduce the number of persons in detention as quickly as possible.

26. This is consistent with guidance from the World Health Organization, which recommended that “enhanced consideration should be given to resorting to non-custodial measures at all stages of the administration of criminal justice, including at the pre-trial, trial and sentencing as well as post-sentencing stages.”¹² Indeed, the pandemic has prompted the release of prisoners around the world. In California, 3,500 inmates were granted early release.¹³ France released 5,000 inmates.¹⁴ Many cities and counties across the US, including San Francisco¹⁵, Chicago¹⁶, Cleveland¹⁷ and New York¹⁸, are also releasing prisoners to reduce the risk of COVID-19.

¹² WORLD HEALTH ORGANIZATION, *Preparedness, prevention and control of COVID-19 in prisons and other places of detention Interim guidance* 4 (Mar. 15, 2020), http://www.euro.who.int/__data/assets/pdf_file/0019/434026/Preparedness-prevention-and-control-of-COVID-19-in-prisons.pdf?ua=1.

¹³ Robert Burnson and Laurel Brubaker Calkins, California, *Texas Plan Wide Release of Inmates as Virus Spreads*, BLOOMBERG NEWS (Mar. 31, 2020), <https://www.bloomberg.com/news/articles/2020-03-31/california-to-release-up-to-3-500-inmates-in-response-to-virus>.

¹⁴ BBC NEWS, *Coronavirus: Low-risk prisoners set for early release* (Apr. 4, 2020) <https://www.bbc.com/news/uk-52165919>.

¹⁵ Katie Canales, *Nearly half of San Francisco's inmate population has been released to avoid coronavirus outbreaks within jails*, BUSINESS INSIDER (Apr. 6, 2020), <https://www.businessinsider.com/san-francisco-inmates-jails-released-coronavirus-2020-4>.

¹⁶ Cheryl Corley, *To Combat High Infection Rate, Chicago Jail Releases Hundreds*, NPR (Apr. 11, 2020), <https://www.npr.org/2020/04/11/832572950/to-combat-high-infection-rate-chicago-jail-releases-hundreds>.

¹⁷ Scott Noll, *Cuyahoga County Jail releases hundreds of low-level offenders to prepare for coronavirus pandemic*, THE REBOUND (Mar. 20, 2020), <https://www.news5cleveland.com/news/local-news/oh-cuyahoga/cuyahoga-county-jail-releases-hundreds-of-low-level-offenders-to-prepare-for-coronavirus-pandemic>.

¹⁸ Mary Bassett et al., *Andrew Cuomo, Stop a Coronavirus Disaster: Release People from Prison*, N.Y. TIMES (Mar. 30, 2020), <https://www.nytimes.com/2020/03/30/opinion/nyc-prison-release-covid.html>.

III. Medically Vulnerable Persons at Shelby County Jail Are at Grave Risk of Death or Serious Illness

27. I have reviewed the following materials regarding the conditions at Shelby County Jail: the declarations of Josh Spickler; the declaration of Stella Yarbrough; the declaration of Josie Holland; the declaration of Ann Schiller; the declaration of Michael Working.

28. Based on my review of these materials, my experience working in public health in jails and prisons, and my review of the materials above, it is my opinion that medically vulnerable persons at Shelby County Jail are at grave risk of death or serious illness. To the extent possible, Respondent-Defendants must release all medically vulnerable people to prevent death and serious illness. The reasons for this conclusion are described below.

29. I understand that many detainees at Shelby County Jail are housed in “pods,” of around 30 to 40 people, comprised of cells which line a communal area. I understand that on April 17, 2020, 23 pretrial detainees at the Jail were tested; five were positive for COVID-19.¹⁹ On April 30 the Jail tested 266 pretrial detainees and employees. Seventy-two percent tested positive.²⁰ The numbers in the Jail today are likely higher, as the Jail has neither administered universal testing nor any testing since April 30, 2020. To date, one Jail employee has died from COVID-19.²¹

30. Many detainees at Shelby County Jail, including medically vulnerable detainees, are not able to practice social distancing. I understand that many cells are shared by two detainees,

¹⁹ Yolanda Jones, *Five Inmates Test Positive for COVID at Shelby County Jail as Bonner Takes Safety Precautions*, DAILY MEMPHIAN (Apr. 17, 2020) <https://dailyMemphian.com/article/13074/sheriff-floyd-bonner-five-inmates-positive-coronavirus-shelby-county-jail>.

²⁰ Yolanda Jones, *More Than 70% Of Inmates Tested At 201 Poplar Are Positive For COVID-19*, DAILY MEMPHIAN (Apr. 29, 2020) <https://dailyMemphian.com/article/13488/201-poplar-covid-testing-70-percent-positive>.

²¹ Yolanda Jones, *Sheriff's Office Employee Dies From COVID-19*, DAILY MEMPHIAN (Apr. 21, 2020) <https://dailyMemphian.com/article/13185/sheriffs-office-employee-dies-from-covid-19>.

and that the cells are not large enough for cell mates to maintain a distance of six feet apart from each other. Those detainees share a toilet and sink.

31. Detainees also eat meals and share telephone and laundry facilities in the communal area. I understand that communal areas are not large enough that detainees can practice social distancing. Detainees must queue in close proximity to each other to receive any medication they require, where it is impossible to maintain six-foot distance from each other. Detainees must queue in close proximity to receive meals, and eat meals at small shared tables. Detainees who are attending court must wait in a holding cell with up to 30 or 40 other detainees, and can spend the entire day in the holding cell. Detainees cannot practice social distancing in any of those situations.

32. I understand that cells are not disinfected regularly. I understand that detainees are not provided with disinfectant or cleaning equipment and that if detainees wish to clean their cells they must submit a request to use cleaning solution spray, which is often not available. I understand that detainees share the use of touchscreen kiosks (used to place orders from the commissary) and telephones in the communal area that are not disinfected between individual uses. I understand that meals are communally prepared and delivered to the detainees by other detainees.

33. I understand that detainees are required to purchase soap from the commissary or, if they do not have funds, they can request small bars of soap at no cost that can take up to a week to arrive. Detainees do not have access to hand sanitizer or paper towels. I understand that, while masks were distributed, many detainees were given only one mask each, which is not cleaned or replaced regularly, if at all. I understand that not all detainees are required to wear masks in communal areas.

34. I understand that many staff do not wear masks and when they do wear the masks, they do not wear them adequately so that it covers their mouths at all times when in the presence

of detainees. Failure to do so places detainees at risk of infection by staff, who often move in close proximity to the people being detained. Staff do not always practicing social distancing from each other.

35. I understand that detainees can request medical attention by logging a sick call through the kiosk in the communal area for a fee. I understand that once the sick call has been logged it can take up to two days to be seen by medical staff. I understand that some detainees who have displayed COVID-19 symptoms have not been provided with any medical assistance.

36. I understand that people arrested and booked into the Shelby County Jail are not consistently screened for symptoms of COVID-19. Failure to screen and quarantine new arrivals places other prisoners at risk of infection from new arrivals who are infected, including those who are asymptomatic or presymptomatic. Under the conditions described herein, detainees cannot practice social distancing or good hygiene, nor can they frequently disinfect shared surfaces. The detainees at Shelby County Jail are unable to take basic steps to protect themselves from the virus. There is a high risk that detainees will become infected with COVID-19, which means that medically vulnerable detainees face a grave risk of death or serious illness.

37. I understand that some detainees who tested positive for COVID-19 were removed from their pods to designated quarantine areas, including isolation units. I also understand some detainees that have exhibited symptoms of COVID-19 but have not tested positive were also placed in quarantine, and were housed with detainees that have confirmed cases of COVID-19. This practice presents a grave risk that persons who are not infected with COVID-19 will become infected.

38. I understand that some quarantined detainees did not have access to fresh drinking water and had to drink water from the toilet tanks. I also understand that those detainees placed in

isolation lost certain privileges (for example, access to a clothes washer and dryer, microwave, and television). The prospect of losing privileges tends to discourage detainees from seeking testing or reporting symptoms and seeking medical attention.

39. In my opinion, the only viable course of action is risk mitigation, and the best form of risk mitigation for medically vulnerable people is to release them from detention, given the heightened risks to their health and safety. I understand that there are 155 confirmed cases of COVID-19 at Shelby County Jail.²² While those detainees have been housed separately, it is likely that there are many unconfirmed cases living amongst the prison population.

40. Release of the most vulnerable people also reduces the burden on the limited health care infrastructure within Shelby County Jail, because the released detainees will not require treatment related to COVID-19 infection and will no longer require treatment for underlying conditions. Releasing medically vulnerable detainees also reduces the burden on nearby hospitals, which will otherwise need to treat these individuals when infected, freeing up those resources to treat other members of the public.

41. Releasing as many detainees as possible is important to protect the health of detainees, staff, health care workers at jails and other detention facilities, and the community as a whole.

42. To the extent possible, medically vulnerable detainees at Shelby County Jail must be released as soon as possible. Those detainees should be released to a place where they can maintain quarantine for at least 14 days and receive any necessary healthcare for underlying chronic conditions.

²² Yolanda Jones, *More Than 70% Of Inmates Tested At 201 Poplar Are Positive For COVID-19*, DAILY MEMPHIAN (Apr. 29, 2020) <https://dailyMemphian.com/article/13488/201-poplar-covid-testing-70-percent-positive>.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20th day in May, 2020 in Alameda County, California.

/s/ Joe Goldenson

Joe Goldenson, M.D.

1406 CYPRESS STREET

BERKELEY, CA 94703

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jgoldenson@gmail.com

Exhibit A

CURRICULUM VITAE

JOE GOLDENSON, MD
1406 CYPRESS STREET
BERKELEY, CA 94703
(510) 557-1086
jgoldenson@gmail.com

EDUCATION

Post Graduate Training

February 1992	University of California, San Francisco, CPAT/APEX Mini-Residency in HIV Care
1979-1980	Robert Wood Johnson Fellowship in Family Practice
1976-1979	University of California, San Francisco Residency in Family Practice

Medical School

1973-1975	Mt. Sinai School of Medicine, New York M.D. Degree
1971-1973	University of Michigan, Ann Arbor

Undergraduate Education

1967-1971	University of Michigan, Ann Arbor B.A. in Psychology
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PROFESSIONAL EXPERIENCE

Practice Experience

1993-2015	Director/Medical Director Jail Health Services San Francisco Department of Public Health
1991-1993	Medical Director Jail Health Services San Francisco Department of Public Health
1990-1991	Chief of Medical Services, Hall of Justice Jail Health Services San Francisco Department of Public Health
1987-1990	Staff Physician Jail Health Services San Francisco Department of Public Health
1980-1987	Sabbatical
1975-1976	Staff Physician United Farm Workers Health Center, Salinas, CA

Consulting

6/16-8/19	Consultant to Los Angeles Department of Health Services re: provision of health care services in the LA County Jail
4/02-Present	Federal Court Medical Expert, <i>Plata v. Newsome</i> , Class Action Lawsuit re: prisoner medical care in California State Prison System
6/14-9/14	Medical expert for the Illinois Department of Corrections and the ACLU of Illinois
6/10-12/13	Federal Court appointed Medical Monitor, U.S.A. v. Cook County, et al., United States District Court for the Northern District of Illinois, No. 10 C 2946, re: medical care in the Cook County Jail
6/08-6/12	Member, <i>Plata v. Schwarzenegger</i> Advisory Board to the Honorable Thelton E. Henderson, U.S. District Court Judge
5/08-9/09	Medical Expert for ACLU re Maricopa County Jail, Phoenix, AZ
1/08	Member of the National Commission on Correctional Health Care's Technical Assistance Review Team for the Miami Dade Department of Corrections
9/07-1/10	Federal Court appointed Medical Expert, <i>Herrera v. Pierce County, et al.</i> , re: medical care at the Pierce County Jail, Tacoma, WA
8/06-8/12	State Court Appointed Medical Expert, <i>Farrell v. Allen</i> , Superior Court of California Consent Decree re medical care in the California Department of Juvenile Justice
6/05	Member of Technical Assistance Review Team for the Dallas County Jail
11/02-4/03	Medical Expert for ACLU re Jefferson County Jail, Port Townsend, Washington
4/02-8/06	Federal Court Medical Expert, <i>Austin, et. al vs Wilkinson, et al</i> , Class Action Law Suit re: Prisoner medical care at the Ohio State Penitentiary Supermax Facility
1/02-3/02	Consultant to the Francis J. Curry, National Tuberculosis Center re: <i>Tuberculosis Control Plan for the Jail Setting: A Template (Jail Template)</i> ,
8/01-4/02	Medical Expert for ACLU re Wisconsin Supermax Correctional Facility, Boscobel, WI
7/01-4/02	Medical Expert for Ohio Attorney General's Office re Ohio State Prison, Youngstown, OH
1/96-1/14	Member and Surveyor, California Medical Association Corrections and Detentions Health Care Committee
5/95-6/08	Medical Expert for the Office of the Special Master, <i>Madrid vs Alameida</i> , Federal Class Action Law Suit re: Prisoner medical care at the Pelican Bay State Prison Supermax Facility
3/98-12/98	Member, Los Angeles County Department of Public Health Jail Health Services Task Force

2/98 Medical Expert, Department of Justice Investigation of Clark
County Detention Center, Las Vegas, Nevada

6/94 Surveyor, National Commission on Correctional Health Care,
INS Detention Center, El Centro, CA

Work Related Committees

1/14 to present Member, Editorial Advisory Board, *Correctional Health Care Report*

10/11 to 5/19 Member, Board of Directors of the National Commission on
Correctional Health Care

5/07-10/12 Liaison to the CDC Advisory Council for the Elimination of
Tuberculosis (ACET) from the National Commission on
Correctional Health Care

12/04-3/06 Member of the CDC Advisory Council for the Elimination of
Tuberculosis (ACET) Ad Hoc Working Group on the *Prevention
and Control of Tuberculosis in Correctional and Detention Facilities:
Recommendations from CDC* (MMWR 2006; 55(No. RR-9))

6/03-8/03 Member of the Advisory Panel for the Francis J. Curry National
Tuberculosis Center and National Commission on Correctional
Health Care, 2003: *Corrections Tuberculosis Training and
Education Resource Guide*

3/02-1/03 Member of the Advisory Committee to Develop the *Tuberculosis
Control Plan for the Jail Setting: A Template (Jail Template)*, Francis
J. Curry, National Tuberculosis Center

6/01-1/15 Director's Cabinet
San Francisco Department of Public Health

3/01 Consultant to Centers for Disease Control on the Prevention
and Control of Infections with Hepatitis Viruses in Correctional
Settings (MMWR 2003; 52(No. RR-1))

9/97-6/02 Member, Executive Committee of Medical Practice Group, San
Francisco Department of Public Health

3/97-3/02 American Correctional Health Services Association Liaison
with American Public Health Association

3/96-6/12 Chairperson, Bay Area Corrections Committee (on tuberculosis)

2/00-12/00 Medical Providers' Subcommittee of the Office-based Opiate
Treatment Program, San Francisco Department of public Health

12/98-12/00 Associate Chairperson, Corrections Sub-Committee, California
Tuberculosis Elimination Advisory Committee

7/94-7/96 Advisory Committee for the Control And Elimination of
Tuberculosis, San Francisco Department of Public Health

6/93-6/95 Managed Care Clinical Implementation Committee, San
Francisco Department of Public Health

2/92-2/96 Tuberculosis Control Task Force, San Francisco Department of
Public Health

3/90-7/97 San Francisco General Hospital Blood Borne Pathogen
Committee

1/93-7/93

Medical Staff Bylaws Committee, San Francisco Department of
Public Health

ACADEMIC APPOINTMENT

1980-2015

Assistant Clinical Professor
University of California, San Francisco

PROFESSIONAL AFFILIATIONS

Society of Correctional Physicians, Member of President's Council, Past-Treasurer and
Secretary

American Correctional Health Services Association, Past-President of California
Chapter

American Public Health Association, Jails and Prison's Subcommittee

Academy of Correctional Health Professionals

PROFESSIONAL PRESENTATIONS

Caring for the Inmate Health Population: A Public Health Imperative, Correctional Health
Care Leadership Institutes, July 2015

Correctional Medicine and Community Health, Society of Correctional Physicians Annual
Meeting, October, 2014

Identifying Pulmonary TB in Jails: A Roundtable Discussion, National Commission on
Correctional Health Care Annual Conference, October 31, 2006

A Community Health Approach to Correctional Health Care, Society of Correctional
Physicians, October 29, 2006

Prisoners the Unwanted and Underserved Population, Why Public Health Should Be in Jail,
San Francisco General Hospital Medical Center, Medical Grand Rounds, 10/12/04

TB in Jail: A Contact Investigation Course, Legal and Administrative Responsibilities, Francis
J. Curry National Tuberculosis Center, 10/7/04

Public Health and Correctional Medicine, American Public Health Association Annual
Conference, 11/19/2003

Hepatitis in Corrections, CA/NV Chapter, American Correctional Health Services
Association Annual Meeting, 1/17/02

Correctional Medicine, San Francisco General Hospital Medical Center, Medical Grand
Rounds, 12/16/02

SuperMax Prisons, American Public Health Association Annual Conference, 11/8/01

Chronic Care Programs in Corrections, CA/NV Chapter, American Correctional Health
Services Association Annual Meeting, 9/19/02

Tuberculosis in Corrections - Continuity of Care, California Tuberculosis Controllers
Association Spring Conference, 5/12/98

HIV Care Incarcerated in Incarcerated Populations, UCSF Clinical Care of the AIDS Patient
Conference, 12/5/97

Tuberculosis in Correctional Facilities, Pennsylvania AIDS Education and Training Center,
3/25/93

Tuberculosis Control in Jails, AIDS and Prison Conference, 10/15/93

The Interface of Public Health and Correctional Health Care, American Public Health Association Annual Meeting, 10/26/93

HIV Education for Correctional Health Care Workers, American Public Health Association Annual Meeting, 10/26/93

PUBLICATIONS

Structure and Administration of a Jail Medical Program. Correctional Health Care: Practice, Administration, and Law. Kingston, NJ: Civic Research Institute. 2017.

Structure and Administration of a Jail Medical Program – Part II. Correctional Health Care Report. Volume 16, No. 2, January-February 2015.

Structure and Administration of a Jail Medical Program – Part I. Correctional Health Care Report. Volume 16, No. 1, November-December 2014.

Pain Behind Bars: The Epidemiology of Pain in Older Jail Inmates in a County Jail. Journal of Palliative Medicine. 09/2014; DOI: 10.1089/jpm.2014.0160

Older jail inmates and community acute care use. Am J Public Health. 2014 Sep; 104(9):1728-33.

Correctional Health Care Must be Recognized as an Integral Part of the Public Health Sector, Sexually Transmitted Diseases, February Supplement 2009, Vol. 36, No. 2, p.S3–S4

Use of sentinel surveillance and geographic information systems to monitor trends in HIV prevalence, incidence, and related risk behavior among women undergoing syphilis screening in a jail setting. Journal of Urban Health 10/2008; 86(1):79-92.

Discharge Planning and Continuity of Health Care: Findings From the San Francisco County Jail, American Journal of Public Health, 98:2182–2184, 2008

Public Health Behind Bars, Deputy Editor, Springer, 2007

Diabetes Care in the San Francisco County Jail, American Journal of Public Health, 96:1571-73, 2006

Clinical Practice in Correctional Medicine, 2nd Edition, Associate Editor, Mosby, 2006.

Tuberculosis in the Correctional Facility, Mark Lobato, MD and Joe Goldenson, MD, *Clinical Practice in Correctional Medicine, 2nd Edition,* Mosby, 2006.

Incidence of TB in inmates with latent TB infection: 5-year follow-up. American Journal of Preventive Medicine. 11/2005; 29(4):295-301.

Cancer Screening Among Jail Inmates: Frequency, Knowledge, and Willingness Am J Public Health. 2005 October; 95(10): 1781–1787

Improving tuberculosis therapy completion after jail: translation of research to practice. Health Education Research. 05/2005; 20(2):163-74.

Incidence of TB in Inmates with Latent TB Infection, 5-Year Follow-up, American Journal of Preventive Medicine, 29(4), 2005

Prevention and Control of Infections with Hepatitis Viruses in Correctional Settings, Morbidity and Mortality Reports, (External Consultant to Centers for Disease Control), Vol. 52/No. RR-1 January 24, 2003

Randomized Controlled Trial of Interventions to Improve Follow-up for Latent

Tuberculosis Infection After Release from Jail, Archives of Internal Medicine, 162:1044-1050, 2002

Jail Inmates and HIV care: provision of antiretroviral therapy and Pneumocystis carinii pneumonia prophylaxis, International Journal of STD & AIDS; 12: 380-385, 2001

Tuberculosis Prevalence in an urban jail: 1994 and 1998, International Journal of Tuberculosis Lung Disease, 5(5):400-404, 2001

Screening for Tuberculosis in Jail and Clinic Follow-up after Release, American Journal of Public Health, 88(2):223-226, 1998

A Clinical Trial of a Financial Incentive to Go to the Tuberculosis Clinic for Isoniazid after Release from Jail, International Journal of Tuberculosis Lung Disease, 2(6):506-512, 1998

AWARDS

Armond Start Award of Excellence, Society of Correctional Physicians, 2014

Award of Honor, San Francisco Board of Supervisors, 2014

Award of Honor, San Francisco Health Commission, 2014

Certificate of Appreciation, San Francisco Public Defender's Office, 2014

Certificate for Excellence in Teaching, California Department of Health Services, 2002

Employee Recognition Award, San Francisco Health Commission, July 2000

Public Managerial Excellence Award, Certificate of Merit, San Francisco, 1997

LICENSURE AND CERTIFICATION

Medical Board of California, Certificate #A32488

Fellow, Society of Correctional Physicians

Board Certified in Family Practice, 1979-1986 (Currently Board Eligible)

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby County
Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF DR. MARIE GRIFFIN IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Marie Griffin, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. I over the age of 18 and am competent to make this declaration.
2. I am a Professor of Medicine and Health Policy at Vanderbilt University in Nashville, Tennessee, where I am a specialist in epidemiology and internal medicine. I have been elected to the American Epidemiology Society and the American Association of Physicians. At the Vanderbilt University Medical Center, I currently direct the Master of Public Health program and do epidemiologic research. I obtained my medical degree from Georgetown University; my master's degree in public health from Johns Hopkins University; and completed my medical residency at Emory University. I trained in epidemiology at the Centers for Disease Control and Prevention ("CDC"), Johns Hopkins University, and the Mayo Clinic. During my two-year epidemiology training at CDC, I served on the New Jersey State Health Department, so I am familiar with outbreak investigations and public health infrastructure. I am a member of the Vanderbilt University Public Health Advisory Task Force which is responsible for advising the University on its COVID-19 response. I am also a member of the University's Department of Health Policy COVID-19 Advisory Panel, and in that role, I have helped prepare advisory memos for use by public health professionals and officials. Attached as Exhibit A is a copy of my curriculum vitae.

3. COVID-19 is an infection caused by SARS-COV-2, a novel zoonotic coronavirus. SARS-COV-2 originated in Wuhan, China in December 2019 and caused a viral outbreak.¹ On March

¹ WORLD HEALTH ORGANIZATION, *WHO Timeline - COVID-19* (Apr. 27, 2020), <https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19>.

12, 2020, the World Health Organization declared that COVID-19 was a global pandemic.² As of May 19, 2020, there are 4,731,458 confirmed cases of COVID-19 worldwide; COVID-19 has caused 316,169 deaths.³ Outbreaks have occurred within the United States in regions like New York, New Jersey, Louisiana, Michigan, and Illinois. As of May 19, 2020, there are 1,477,516 confirmed cases of COVID-19 and 89,272 COVID-19 related deaths within the United States.⁴

4. There is no vaccine for COVID-19 and no known cure. There is no known effective antiviral medication currently available to prevent or treat infection. The only way to reduce the risk of injury or death from COVID-19 is to prevent individuals from being infected with the virus in the first place. One known effective way to reduce the risk of infection is to practice “social distancing” (remaining physically separated, approximately six feet apart from other people), and good hygiene, including washing with soap and water and disinfecting commonly used surfaces. In addition, appropriate public health measures include isolating any person with confirmed or suspected COVID-19 and using quarantine for close contacts of suspected/confirmed cases and all persons with high-risk exposures.

5. COVID-19 can cause flu-like symptoms including fever, cough, and shortness of breath. The virus can cause severe illness requiring hospitalization, the need for mechanical ventilation, and death. Some groups of people are particularly vulnerable to severe illness as a result of COVID-19. People aged over 50 are at higher risk of severe illness, and those aged over 65 are at serious risk. The CDC lists the following conditions that people of any age at high risk for serious illness from COVID-19: chronic lung disease or moderate to severe asthma; serious heart

² WORLD HEALTH ORGANIZATION, *WHO Director-General’s opening remarks at the Mission briefing on COVID-19* (Mar. 12, 2020), <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-mission-briefing-on-covid-19---12-march-2020>.

³ WORLD HEALTH ORGANIZATION, *Coronavirus disease (COVID-19) Situation Report – 116* 14 (May 15, 2020), https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200515-covid-19-sitrep-116.pdf?sfvrsn=8dd60956_2.

⁴ *Id.* at 7.

conditions; conditions that can cause a person to be immunocompromised, including cancer treatment, smoking, bone marrow or organ transplantation, immune deficiencies, poorly controlled HIV or AIDS, and prolonged use of corticosteroids and other immune weakening medications; severe obesity (body mass index [BMI] of 40 or higher); diabetes; chronic kidney disease requiring dialysis; and liver disease.⁵ Pregnancy in the era of COVID-19 also requires special consideration because of risks of transmission and potential needs for isolation and quarantine.

6. The case fatality rate associated with COVID-19 infection is much higher than that associated with seasonal influenza, and has been estimated to be about 10-fold higher. About 15% of those with COVID-19 illness are hospitalized, about 6% require intensive care, and 1% to 5% die. These proportions may be 2-4 times higher among those with high risk conditions.

7. Many people in the vulnerable groups who suffer from severe illness as a result of COVID-19 will require more advanced medical support including mechanical ventilation and, in extreme cases, extracorporeal membrane oxygenation. This heightened level of care is extremely resource intensive. It requires specialized equipment, the supply of which is limited. It also requires an entire team of healthcare providers, including 1:1 or 1:2 nurse to patient ratios, intensive care physicians, and respiratory therapists. The level of support required can quickly exceed the capacity of local healthcare facilities if many cases occur simultaneously.

8. COVID-19 can cause severe damage to lung tissue, which may require an extensive period of rehabilitation. In some cases, it can cause a permanent loss of respiratory capacity. There is evidence that the virus can target the heart muscle, causing myocarditis (inflammation of the heart muscle). Myocarditis can affect the heart muscle and electrical system, reducing the heart's ability to pump. This can lead to rapid or abnormal heart rhythms in the short term, and heart failure in

⁵ CENTERS FOR DISEASE CONTROL AND PREVENTION, *People Who Are at Higher Risk for Severe Illness* (May, 14 2020), <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>.

the longer term. Further, there is evidence that the virus can cause cytokine release syndrome, which is an overproduction of immune cells and their activating compounds—cytokines—causing further damage to organs, and in some cases organ shutdown.

9. Vulnerable patients who do not die can undergo a long recovery requiring intensive rehabilitation, as a result of profound deconditioning, loss of respiratory capacity, neurologic damage, and other effects of severe illness.

10. The period between infection and the development of symptoms is known as the incubation period. The incubation period for COVID-19 can range between two and 14 days, and is typically around five days. However, some infected individuals never develop symptoms at all. There is evidence that the virus can be transmitted by infected individuals who have not yet developed symptoms, and by infected individuals who never develop symptoms. Aggressive testing for the presence of the virus, SARS-COV-2, among those with symptoms, is required, especially in institutional settings. In these settings, the virus can spread quickly and the ability to isolate suspected cases and quarantine those exposed is needed. Testing of asymptomatic individuals may be advised in some situations. Even if no individuals within a community or institution have presented with symptoms and/or tested positive, asymptomatic infected individuals may be present within the community or institution, potentially infecting others on an ongoing basis.

11. Congregate settings pose particularly high risks of virus transmission. Congregate settings are environments where a large number of people live or gather. During the pandemic, very high person-to-person transmission rates for COVID-19 have occurred in congregate settings, including nursing homes (for example, in New Jersey and Washington), on cruise ships and, recently, at the Marion Correctional Facility in Ohio. According to the Department of Rehabilitation and

Correction, approximately 2,011 inmates tested positive (out of 2,500 total inmates at the facility).⁶ 154 employees from a reported staff of about 350 have also tested positive.⁷ Another outbreak occurred at the Rikers Island jail complex in New York City. The number of confirmed cases among inmates increased from one to nearly 200 within 12 days.⁸ At the beginning of April, the rate of infection observed at the Rikers Island jail complex was over eight times the rate of infection observed in New York City.⁹ These outbreaks are consistent with the spread of other viruses within populations in congregate settings. During the 2009 H1N1 influenza epidemic, serious viral outbreaks occurred in jails and prisons.

12. COVID-19 will continue to rapidly spread in prisons and jails. People who live in prisons and jails cannot take basic measures to protect themselves from infection. They do not have sufficient space to engage in social distancing, and often have limited ability to practice proper hygiene. They cannot protect themselves from known infected individuals. Further, people constantly enter these facilities from the wider community (for example, new inmates or staff who reside outside the facility), which means that there is a constant threat that the virus is being introduced. Even where the facility conducts symptom screening, it is possible that infected individuals who are asymptomatic or not yet presenting symptoms will be allowed to enter and infect others within the facility.

13. For the foregoing reasons, it is my opinion that that people aged over 50 and people of any age with certain medical conditions (including the high risk conditions listed above) who are living

⁶ New York Times Editorial Board, *No One Deserves to Die of Covid-19 in Jail*, N.Y. TIMES (Apr. 23, 2020), <https://www.nytimes.com/2020/04/23/opinion/coronavirus-prisons.html>.

⁷ *Id.*

⁸ Miranda Bryant, *Coronavirus spread at Rikers is a 'public health disaster', says jail's top doctor*, THE GUARDIAN (Apr. 1, 2020), <https://www.theguardian.com/us-news/2020/apr/01/rikers-island-jail-coronavirus-public-health-disaster>.

⁹ Legal Aid Society, *Analysis of COVID-19 Infection Rate in NYC Jails* (Apr. 3, 2020), https://legalaidsnyc.org/wp-content/uploads/2020/04/4_3_Analysis-of-COVID-19-Infection-Rate-in-NYC-Jails-1.pdf

in congregate settings such as prisons or jails, with limited ability to physically distance themselves from others, limited access to adequate hygiene facilities, and who are exposed to potentially infected individuals from the community, are at grave risk of severe illness and death from COVID-19.

14. I have read the declaration of Josh Spickler regarding Favian Busby. I understand that Mr. Busby is currently being treated for diabetes mellitus and hypertension. It is my opinion that he is at high risk of serious illness from COVID-19. As described above, the CDC's guidelines state that diabetes is an underlying medical condition that puts people of any age at high risk of serious illness from COVID-19.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20th day in May 2020 in Nashville, Tennessee.

/s/Marie Griffin
Marie Griffin

Marie R. Griffin M.D. M.P.H.
Department of Health Policy
Vanderbilt University Medical Center
Village at Vanderbilt
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Room / Suite 2600
Nashville, Tennessee 37212
(615) 322-2037
marie.griffin@vanderbilt.edu

Exhibit A

May 2020

CURRICULUM VITAE

NAME: Marie R. Griffin, MD, MPH

OFFICE ADDRESS: Department of Health Policy
Vanderbilt University Medical Center
Village at Vanderbilt
1500 21st Ave South, Suite 2100
Nashville, TN 37212
Marie.griffin@vumc.org

OFFICE PHONE NUMBER: (615) 875-9605 **FAX NUMBER:** 615-343-0962

LICENSURE AND CERTIFICATION:

State of Tennessee, February 1986
American Board of Internal Medicine, September 1979
American Board of Preventive Medicine, February 1984

EDUCATION:

College

09/68–05/72 Immaculata College, Pennsylvania, A.B.

Professional or Graduate

07/72–06/76 Georgetown University School of Medicine, M.D.

07/81–05/83 Johns Hopkins School of Hygiene and Public Health, M.P.H.

Postgraduate Training

07/76–06/77 Medicine Internship, North Shore University Hospital (Cornell), Manhasset, NY

07/77–06/79 Medicine Residency, Emory University/Grady Memorial Hospitals, Atlanta, GA

07/79–06/81 Epidemic Intelligence Service (EIS) Officer, Centers for Disease Control,
assigned to the New Jersey State Department of Health

07/81–12/82 Andrew W. Mellon Clinical Epidemiology Fellow, The Johns Hopkins Medical
Institutions

ACADEMIC APPOINTMENTS:

07/81–12/82 Instructor, Department of Medicine, Johns Hopkins University School of
Medicine, Baltimore, MD

01/83–06/84 Research Associate, Department of Medical Statistics and Epidemiology, Mayo
Clinic, Rochester, MN

07/84–06/85 Fellow, Internal Medicine, Mayo Clinic and Assistant Professor, Department of
Medicine, Mayo Medical School, Rochester, MN

07/85–10/85 Assistant Professor, Department of Medical Statistics and Epidemiology,
Mayo Clinic, Rochester, MN

01/86–06/90 Assistant Professor, Departments of Preventive Medicine and Medicine,
Vanderbilt University School of Medicine, Nashville, TN

07/90–03/95 Associate Professor, Departments of Preventive Medicine and Medicine,
Vanderbilt University School of Medicine, Nashville, TN

04/95-- Professor, Departments of Health Policy (formerly Preventive Medicine) and
Medicine, Vanderbilt University School of Medicine, Nashville, TN

2002–2018 Staff Physician, GRECC VA Tennessee Valley Healthcare System

2019— Directorship, Public Health Research and Education

HOSPITAL APPOINTMENTS:

Vanderbilt University Hospital, Nashville, TN

VA Tennessee Valley Healthcare System, Nashville, TN

PROFESSIONAL ORGANIZATIONS:

Member, Society for General Internal Medicine

Member, Society for Epidemiologic Research

Member, American College of Epidemiology

PROFESSIONAL ACTIVITIES:

Vanderbilt

Patient Care Policy Committee- 1986-8
Faculty Advisory Committee- 1987-8, 2004-8
Institutional Review Board- 1989-92
Women's Faculty Organization – Executive Board- 1992
Medical Center Task Force on Research Needs- 1992-3
Academic Program Committee- 1993-1997
Chair, Nutrition Education Subcommittee 1993-1997
Chair, Women's Health Subcommittee 1996-1997
American Cancer Society, Institutional Grant Review Committee 1994-96
Vice Chancellor Faculty Scholar Award Review Committee -1994-96
Promotions and Tenure Committee, School of Medicine 2000-2002
Faculty Senate 2003—2006
Education Portfolio Standards for Promotion 2009
Co-Director, Vanderbilt MPH program 1996-2005
Chair, MPH Curriculum Committee 2005-13
Director, Epidemiology Track, MPH program 2011-2013
Executive Committee MPH Program 2011-
Search Committee, Chair in Addiction Medicine 2011-2012
Epidemiology PhD Admissions Committee 2011-2014
Search Committee, Chair in Geriatrics 2012-2013
Committee on Appointments and Promotion, Department of Medicine 2012-2014
Faculty Appointments and Promotions Committee, School of Medicine 2012-2014
Faculty Search Committee, Health Policy 2013-2018
Director, MPH Program 2014-
School of Medicine Honor Code Committee 2014
School of Medicine, Medical School Entry Requirements Committee 2014
Faculty Research Scholars Selection Committee 2014-2019
Joint Post-Graduate Education Programs Committee 2014-2019
School of Medicine, Admissions Committee 2018-2020
Provost Public Health Advisory Taskforce on COVID-19 2020
Department of Health Policy COVID-19 Advisory Panel 2020

National

Institute of Medicine/National Academy of Science, Engineering and Medicine:

Committee to Review Adverse Consequences of Pertussis and Rubella Vaccines 1990-1991
Invited participant, Workshop on Research Strategies for Assessing Adverse Reactions to Vaccines 1993
Reviewer, DPT Vaccine and Chronic Nervous System Dysfunction, A New Analysis
Invited speaker, Forum on Adverse Events Associated with Vaccines 1996
Invited speaker, Committee on Implementation of Antiviral Medication Strategies for an Influenza Pandemic 2007
Clinical Effectiveness Research Innovation Collaborative 2009
Committee to Review Long-Term Health Effects of Antimalarial Drugs 2019-2020

American College of Physicians:

Task Force on Adult Immunization, 1991-1996, 1999-2002

Centers for Disease Control and Prevention:

Advisory Committee on Immunization Practices, 1994-99
Invited Participant, Forum on Vaccines and Intussusception, 2000
Invited Participant, Workshop on Antiviral Agents for Pandemic Influenza, 2001

Invited Participant, Committee to Review Study Design for Assessing
Risk associated with Thimerosal Containing Vaccines, 2001
Presentations to the Advisory Committee on Immunization Practices 2003, 2004
Advisory Committee on Immunization Practices Work Group on RSV 2016-

Food and Drug Administration:

Arthritis Advisory Committee- Invited Speaker 1995
Nonprescription Drugs Advisory Committee – Invited Speaker 2002
Nonprescription Drugs Advisory Committee, 2006—2009
Vaccine and Related Products Advisory Committee Temporary Voting Member 2017
Drug Safety and Risk Management Advisory Committee 2018-

Centers for Medicaid and Medicare Services:

Medicare Evidence Development and Coverage Advisory Committee 2010-2012

ATS/IDSA Community Acquired Pneumonia Guidelines Committee, 2015-2018

American Epidemiologic Society Membership Committee, 2013-17; Chair, 2017; President-Elect 2020

Association of Schools and Program of Public Health

MPH Council 2017-

Council on Education in Public Health accreditation reviewer 2017-

Study Sections:

Ad Hoc Epidemiology study sections 1 and 2 (NIH), NIAID special study section (NIH) on pertussis vaccine trials, March of Dimes, Agency for Health Care Policy & Research, American Teachers of Preventive Medicine, NIDDK special study section on celiac disease 1999, NICHD special emphasis panel 2000, CDC K awards 2004, AHRQ CERT centers 2005

Study Section Member 2008-12 Health Care Research Training, Agency for Healthcare Research and Quality (AHRQ)

Greenways for Nashville Board Member 2016-

Ad-hoc journal review:

Annals of Internal Medicine, New England Journal of Medicine, Journal of the American Medical Association, American Journal of Epidemiology, American Journal of Cardiology, American Journal of Public Health, Journal of Pediatric Infectious Diseases, Pediatric Infectious Disease Journal, Journal of the American Geriatrics Society, Gastroenterology, Southern Medical Journal, Journal of Clinical Epidemiology, Pediatrics, Cancer, American Journal of Medicine, Epidemiology, Journal General Internal Medicine, Journal of Rheumatology, Arthritis and Rheumatism, Pediatrics, Journal of Infectious Diseases, Vaccine, PlosOne, PlosMedicine

International (Invited participant):

International Clinical Pharmacology Conference, Yokohama, Japan 1992

International Epidemiology Association, Sydney, Australia, 1993

Workshop on Risk of Major Complications with Individual NSAIDs, Newcastle, Australia, 1993

Taisho International Symposium on Gastroenterology, Hakone, Japan, 1994

International Agency for Research on Cancer (IARC) Review of Nonsteroidal Anti-inflammatory Drugs, Lyon, France, 1997

WHO Vaccines and Biologics Strategic Advisory Group of Experts (SAGE), Geneva, Switzerland, 2001

WHO Global Vaccine Safety Advisory Committee, Geneva, Switzerland, 2001

First Neonatal Vaccine Workshop, Washington DC 2004

3rd International Congress on Respiratory Viruses Chicago, Ill. April 2004

International Society for Pneumonia and Pneumococcal Disease, Plenary talk, Brazil March 2012

WHO workshop Geneva, Switzerland PCV Meeting: Short and Long-term Impact Evaluation Framework, September, 2013

International Society for Pneumonia and Pneumococcal Disease, Plenary talk, Hyderabad March 2014

Opponent of doctoral research thesis, Tampere, Finland March 2015

Health Research Board of Ireland –International Peer Review of grant June 2015

ACADEMIC OR PROFESSIONAL HONORS:

1981 Andrew W. Mellon Clinical Epidemiology Fellow
 1986 Andrew Mellon Foundation New Faculty Award
 1987 Burroughs Wellcome Scholar, Pharmacoepidemiology
 1989 Fellow, American College of Physicians
 1990 Elected to American Epidemiological Society
 1994 AAMC Professional Development Seminar for Senior Women in Medicine
 2003 Faculty Teaching Award for mentoring post-doctoral students
 2004 Ronald D. Mann Best Paper Award, Pharmacoepidemiology and Drug Safety
 2005 Elliot Newman Award for Excellence in Clinical Research, VUMC
 2006 Grant W Liddle Award for Outstanding Contributions to Research, VUMC
 2010 Outstanding Achievement in Healthcare Policy Research Using HCUP Data
 2011 Five Star Excellence Award Quality of Doctor Care
 2011 Gary D. Friedman Outstanding Paper Award (Kaiser Permanente Division of Research)
 2013 American Academy of Physicians
 2014 Association for Clinical and Translational Science Distinguished Investigator Award for Translation from Clinical Use into Public Benefit and Policy
 2014 Ronald D. Mann Best Paper Award, Pharmacoepidemiology and Drug Safety (senior author)
 2014 Five Star Excellence Award Quality of Doctor Care
 2017 Mary Jane Werthan Award for Advancement of Women at Vanderbilt
 2019 Endowed Directorship in Public Health Research and Education
 2020 Robert Austrian Memorial Lecturer

TEACHING ACTIVITIES:

Master of Public Health Program: 1996-2009, Course Director: Epidemiology 1
 1996-2006 Course Director: Environmental Health
 1996—present, thesis mentor
 2007—2014, Course Director: Public Health Practicum
 2011—2013 Director, Epidemiology Track
 2011—present, Executive Committee
 2014—present, Director
 2018, Course Director: Public Health Practice
 Medical students: 1986-2005, lecturer, Preventive Medicine course
 1986-1990, supervise students in outpatient practice
 1995, preceptor, Microbial Topics
 2006, emphasis program advisor
 2013—2014, content advisor research curriculum
 2014—2017, research area head, epidemiology section
 Medicine residents and students: 1990-2010 clinic supervision
 1990-2018: inpatient attending, resident didactics

RESEARCH SUPPORT:**Current Research support**

5R01AG043471-06 (Grijalva)	04/30/2016-05/31/2020	0.60 Calendar
NIH/NIA	\$187,190 (NCE)	
Opioid Selection and the Risk of Serious Infections in Older Adults		

Long-standing concerns that opioids increase the risk of infections are particularly relevant for older adults, who are commonly affected by pain and are at increased risk for infections. Identifying those opioids with the lowest risk of increasing infections is crucial to informing the selection of analgesics for older adults. Given the high prevalence of opioid use in older adults, determining and quantifying these risks is of great public health interest.

VUMC57393 /HHSF 22301400301T (Griffin) 09/22/2015-09/21/2019 0.60 Calendar
FDA Mini-Sentinel \$169,750

Infrastructure (task order 12) yr 5

The objective of this project is to select and test statistical methods appropriate for use when analyzing cross-sectional and longitudinal observational healthcare administrative, claims, and clinical data, with specific attention to clinical laboratory test results data when missing data are expected. Role: Project PI

VUMC 60868/ HHS2232014000421 (Griffin) 09/29/2016-09/28/2019 0.60 Calendar
Food and Drug Administration \$152,021

Task order Proposal 1164146-Evaluation of the Risk of Neural Tube Defects among Live Births Exposed to Maternal Prescription Opioids

A retrospective cohort design of pregnant women will be used to study the association of opioid use during pregnancy and neural tube defects (NTDs). Women will be included in the study if they had medical and prescription drug coverage and were clinically followed from 90 days before last menstrual period through delivery and delivered a live-birth. The study population of interest includes all women who delivered a live-born infant during the time period of 1/1/2001- 12/31/2015 and children born to these women. Role: Project PI

VUMC 07131 (U50CK000198) (Schaffner) 01/01/2012 – 12/31/2019 5.04 Calendar
CDC \$128,062

EIP Core Continuation Emerging Infections Program/ HPV and ABC

Comprehensive enhanced population-based public health surveillance for laboratory-confirmed invasive bacterial infections, influenza, encephalitis, human papillomavirus and pre-cancerous lesions. Dr. Griffin is the local lead for the multisite surveillance of HPV-related diseases, HPV-IMPACT.

VUMC 60397 (HHSF22301012T) (Griffin) 09/15/2016 – 09/14/2019 0.36 Calendar
FDA \$19,858

Maintenance and Operation for Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP)

The Tennessee Medicaid database is routinely linked to birth certificates to allow study of exposures in pregnancy. FDA has supported this data infrastructure to be available to quickly address safety concerns relating to drugs and vaccines during pregnancy.

VUMC 64327/ HHSF223201710132C (Griffin) 01/01/2018 - 06/31/2020 0.60 Calendar
Food and Drug Administration \$30,018

A Reusable, Generalizable Method to Link Health Plan Claims Data with the National Death Index Plus to Examine the Association Between Men

VUMC52910 / (Grijalva) 10/19/2015 - 10/18/2019 0.60 Calendar
Campbell Collaboration \$1,065,405

Campbell Collaboration – Opioid PMR Consortium

Master Service Agreement between Campbell Alliance and VUMC. Scope of Work: PMR 2065-1B, Contribute to the revision and development of the final study protocol; Actively participate in the execution of the final study protocol, using available data from the TN Medicaid program and other

relevant data sources; Actively participate in the review and interpretation of study findings and the drafting of the study reports

1R01CA232516-01A1 (Tindle)
NCI

04/01/2019 - 03/31/2024
\$410,528

0.60 Calendar

Metabolism Informed Smoking Treatment in Medicaid and Medicare Patients: The MIST RCT
The goal of this study is to test Metabolism-Informed Smoking Treatment (MIST), a precision approach that biologically tailors medication to nicotine metabolism, for Medicaid and Medicare (CMS) beneficiaries in the Mid-South who smoke. This testing will explore whether using information about speed of nicotine metabolism will help more people successfully quit smoking.

Completed Research Support

VUMC42609 /R1306-04869 (Rothman)
PCORI

03/11/14-03/09/19

The Mid-South CDRN Phase II

Conducting research will be the main focus of Phase II. Our CDRN has already collaborated on the planning and conduct of over 30 different research projects, including projects with CDRNs, PPRNs, researchers from academic institutions, and the health industry. We are also actively participating in the PCORI funded pragmatic trial on aspirin dosing, and planned PCORI observational studies on obesity. Phase II will focus on continued participation in a wide array of research activities including “pre-research” and complex queries, observation research, and interventional studies.

VUMC 59796 (HHSF22301007) (Griffin)
FDA

09/16/2015 – 10/30/2019

Kawasaki Disease and PCV13 Vaccine Task order

Case reports of children who developed Kawasaki Disease following vaccination was the impetus for this observational study. Role: Project PI

VUMC 41717 / GR-15-43659 (Griffin)
CDC

09/30/2013 – 09/29/2017

EIP Infrastructure

Dr. Griffin is working with State and CDC partners to build enhanced systems for disease surveillance. The focus of current activities is on creating a multisite database to monitor pneumonia incidence and address effectiveness of pneumococcal vaccines in changing the epidemiology of pneumonia. Role: Project PI

6R01AG043419-04 (Talbot)
NIH/NIA

07/01/2013 – 06/30/2017

Effectiveness of the Influenza Vaccine in the Aging Population

This study is a secondary analysis of an existing database to determine influenza vaccine effectiveness in older adults. This database, an accumulation of three studies, will be used to determine if the current methodology of test-negative controls will actually control for the bias of frailty, will determine vaccine effectiveness in the very old, and will explore if vaccine manufacturing process impacts effectiveness.

VUMC41170 (Griffin)
MedImmune

08/23/2013-08/22/2016

A Case Control Study of the Effectiveness of Q/LAIV Versus Inactive Influenza Vaccine and No Vaccine in Subjects 2-17 years

VUMC 61474 (Griffin)

05/30/2017- 12/31/2018

Reagan Udall Foundation

IMEDS Queries

This investigation uses the IMEDS Query Bundles to establish and maintain the administrative, intellectual, and technical capacity of research partners to participate in a distributed research network and respond to the Queries established by the IMEDS Master Agreement

11-IPA-1110211 (Griffin)

9/1/2011-8/31/2014

CDC

Evaluation of pneumococcal conjugate vaccine-13 on non-invasive *Streptococcal pneumonia* disease in children and adults using national and Tennessee State data.

5P60AR056116-02 (Stein)

8/1/2009-7/31/2013

NIH

No cost extension through 7/31/2015

Vanderbilt Multidisciplinary Clinical Research Center

This project is a multidisciplinary clinical research center in arthritis. Dr. Griffin's project addresses comparative safety of biologics and other disease modifying anti-arthritis drugs in rheumatoid arthritis. Using VA national VA data comparative effectiveness of specific opioids for treatment of pain in rheumatoid arthritis will be explored.

Thrasher (Grijalva)

5/1/2011-4/31/2013

Thrasher Foundation

This study will examine the role of influenza and other respiratory viruses, and pneumococcus on the development of several acute respiratory infections in young children living in rural areas of the Peruvian Andes.

VACREF Protocol: LTPS (CSP#403C) (Griffin, site PI)

9/1/2006-12/31/2013

Merck

Long Term Persistence of Zoster Vaccine (Zostavax) Efficacy in subjects 60 years or older

This project studies the efficacy of the Zoster Vaccine.

5T32 HS013833-07 (Griffin)

7/1/2008-6/30/2013

AHRQ

Vanderbilt Health Services Research Training Program

An institutional career development program, Vanderbilt Health Services Research Training Program.

200-2008-24624 (Griffin)

9/1/2011-12/31/12

RTI (Research Triangle Institute)

Effectiveness of Neuraminidase Inhibitors among Adults

This project will estimate the effectiveness of Neuraminidase Inhibitors among adults.

5UL1 RR024975-03 (Bernard)

9/17/2007-9/21/12

NCRR

The Vanderbilt Institute for Clinical and Translational Research (VICTR)

This project involves the Vanderbilt Institute for Clinical and Translational Research (VICTR).

Role: involvement in training activities

5U18 HS016974-03 (Ray)

9/01/2007-8/31/2012

AHRQ

Vanderbilt Center for Education/Research on Therapeutics

This project encourages optimal therapeutics in Medicaid and Veteran's Health Administration Populations, by conducting interdisciplinary projects.

5U18 P000184-02 (Griffin)	8/1/2008-7/31/2012
Centers for Disease Control and Prevention	
Annual Estimates of Influenza Vaccine Effectiveness: Davidson County, TN	
Active population-based surveillance for laboratory confirmed influenza in adults and children to determine medical care visit rates in the county and estimate annual influenza vaccine effectiveness.	
1R01 HS018454-01 (Hartert)	9/30/09-7/31/12
AHRQ	
Tools to Reduce Infant RSV	
A study in the tools to reduce infant RSV morbidity and asthma.	
1U18 HS17919-01 (Griffin, site PI)	10/1/2008-9/29/2011
AHRQ	
Subcontract with University of Alabama	
Safety Assessment of Anti-TNF Agents Used in Autoimmune Disease	
Help the AHRQ, the FDA, drug manufacturers, physicians and patients identify those patient groups who are at increased risk for serious adverse events with biologic therapy.	
TS-1494/APTR/CDC (Griffin)	10/1/2008-9/30/2011
APTR	
Monitoring Pneumonia and other Pneumococcal Diseases in the United States	
Characterize the burden of pneumonia on the US health care system	
HSA290-2005-0042-1-TO2-WA4 (Griffin)	9/1/2008-4/30/2011
AHRQ	
Knowledge Gaps in Type 2 Diabetes	
Therapeutics: Comparative Effectiveness & Safety of Oral Antidiabetic Drugs	
Comparative effectiveness of first line treatments for type 2 diabetes on cardiovascular outcomes.	
HSA290-2005-0042-I-TO2-WA#2 (Griffin through DEcIDE)	9/1/2007-4/30/2011
AHRQ	
Multi-Center, Observational Cohort Study to Assess the Cardiovascular Risks of Medications Prescribed for ADHD	
Assess the association between prescription use of medications for ADHD and adverse cardiovascular events, including sudden death, acute myocardial infarction, stroke and cardiac arrhythmias.	
5R01AI063200-05 (Sterling)	3/1/2006-2/28/2011
NIH/NIH	
Fluoroquinolone Resistance in M. Tuberculosis	
This project will analyze fluoroquinolone resistance in M. Tuberculosis	
K01 (Grijalva)	10/1/07-9/30/10
CDC	
Evaluating the Impact of a Large School-Based Influenza Immunization Campaign	
This study will be evaluating a large school-based influenza immunization campaign.	
5T32 HL007411-30 (Sawyer)	7/1/05-6/30/10
NIHLBI	
Cardiovascular Mechanisms: Training in Investigation	
This training grant will provide training in the study of the cardiovascular mechanism.	

5R03 AI068099-02 (Williams) NIAID Epidemiology and Clinical Features of Human Coronavirus	2/1/07-1/31/10
CRCOE – 04-CRCOE-002 (Griffin) VA Tennessee Valley VA Clinical Research Center of Excellence Infrastructure development for comparative effectiveness research and junior faculty development.	10/1/2004-9/30/2009
5U01 IP00022 (Edwards) CDC Enhanced Surveillance for Newly Vaccine Preventable Diseases This project performed surveillance for new vaccine preventable diseases.	9/30/04-9/29/09
1R03 AI068069 (Talbot) NIAFD Epidemiology and Clinical Features of Human Coronavirus This study evaluated epidemiology and the clinical aspects of human coronavirus.	12/1/07-9/30/09
5R03 HS016784-02 (Grijalva) AHRQ The Impact of the Pneumococcal Conjugate Vaccine on Pneumonia Hospitalizations Role: Mentor	3/1/2007-2/28/2009
U50 CCU300860 (Griffin) APTR Nationwide Impact of the Pneumococcal Vaccination Programs This study estimated the burden of invasive and non-invasive pneumococcal diseases related hospitalizations in the United States and evaluated the overall impact of pneumococcal conjugate vaccine on hospital admissions for pneumonia.	9/30/06-9/29/08
MedImmune, Inc. (Griffin) MedImmune Evaluation of the Knox County School-based Immunization Program The major goals of this project were to perform active surveillance for influenza associated illness among Knox County residents to evaluate the 2006-07 school-based immunization program.	9/14/06-9/13/08
Pfizer (Griffin) Pfizer Valdecoxib/coxibs Drug Utilization & Stroke This study was a retrospective cohort study to determine whether specific NSAIDs, including coxibs, are associated with an increased risk of ischemic or hemorrhagic stroke	5/1/04-4/30/08
5R01 AI50884 (Hartert) NIH/NIAID Dietary antioxidants and Incidence of Adult-Onset Asthma The overall goal of this project was to investigate the role of oxidative stress in the incidence and pathogenesis of allergic asthma	8/1/03-1/31/08

PUBLICATIONS:***Articles in refereed journal***

1. Griffin MR, Suroweic J, McCloskey D, et al. Foodborne Norwalk virus. *Am J Epidemiol* 1982;115:178-84.
2. Griffin MR, Miller A, Davis A. Blood culture contamination associated with a radiometric analyzer. *J Clin Microbiol* 1982;15:567-70.
3. Jones TS, Liang AP, Kilbourne EM, Griffin MR, et al. Morbidity and mortality associated with the July 1980 heat wave in St. Louis and Kansas City, Missouri. *JAMA* 1982;247:3327-31.
4. Kilbourne EM, Choi K, Jones TS, Field Investigation Team (including Griffin MR). Risk factors for heatstroke. *JAMA* 1982;247:3332-6.
5. Griffin MR, Dalley E, Fitzpatrick M, Austin SH. *Campylobacter* gastroenteritis associated with raw clams. *J Med Soc NJ* 1983;80:607-9.
6. Parkin WE, Marzinsky P, Griffin MR. Foodborne Hepatitis A associated with cheeseburgers. *J Med Soc NJ* 1983;80:612-5.
7. Bowen GS, Griffin M, Hayne C, Slade J, Schulze TL, Parkin W. Clinical manifestations and descriptive epidemiology of Lyme Disease in New Jersey, 1978 to 1982. *JAMA* 1984;251:2236-40.
8. Griffin MR, Opitz JL, Kurland LT, Ebersold MJ, O'Fallon WM. Traumatic spinal cord injury in Olmsted County, Minnesota, 1935-1981. *Am J Epidemiol*, 1985; 12:884-895.
9. Griffin MR, O'Fallon WM, Opitz JL, Kurland LT. Mortality, survival, and prevalence: traumatic spinal cord injury in Olmsted County, Minnesota, 1935-1981. *J Chron Dis* 1985; 38:643-53.
10. Griffin MR, Wilson WR, Edwards WD, O'Fallon WM, Kurland LT. Infective endocarditis, Olmsted County, Minnesota, 1950-1981. *JAMA* 1985; 254:1199-1202.
11. Beard CM, Griffin MR, Offord KP. Risk factors for sudden unexpected cardiac death in young women in Rochester, Minnesota 1960 through 1974. *Mayo Clin Proc* 1986;61:186-191.
12. Ballard-Barbash R, Griffin MR, Fisher LD, Covalciuc MA, Jiang N. Estrogen receptors in breast cancer: Association with epidemiologic risk factors. *Am J Epidemiol* 1986;124:77-84.
13. Ballard-Barbash R, Griffin MR, Wold LE, O'Fallon WM. Breast cancer incidence and survival in Rochester, Minnesota, 1935-1982. *Mayo Clin Proc* 1987; 62:192-8.
14. Ray WA, Griffin MR, Schaffner W, Baugh DK, Melton LJ. Psychotropic drugs and hip fractures. *New Engl J Med* 1987; 316:363-9.
15. Griffin MR, Bergstralh EJ, Coffey RJ, Beart RW Jr, Melton LJ. Predictors of survival after curative resection of carcinoma of the colon and rectum. *Cancer* 1987; 60:2318-2324.
16. Griffin MR, Stanson AW, Brown ML, Hauser MF, O'Fallon WM, Anderson HM, Kazmier FJ, Melton LJ. Deep venous thrombosis and pulmonary embolism. Risk of subsequent malignant neoplasms. *Arch Intern Med* 1987; 147:1907-1911.
17. Jedd MB, Melton LJ, Griffin MR, Kaufman BH, Hoffman AD, Broughton DD, O'Brien PC. Factors associated with infantile hypertrophic pyloric stenosis. *Am J Dis Children* 1988;142:334-337.
18. Beard CM, Griffin MR, Schwenk NM, Offord KP, Reiman HM. Incidence of malignant bone and joint tumors in Olmsted County, Minnesota, 1935 through 1981. *Mayo Clin Proc* 1988;63:332-336.
19. Jedd MB, Melton LJ, Griffin MR, Kaufman BH, Hoffman AD, Broughton DD, O'Brien PC. Trends in infantile hypertrophic pyloric stenosis in Olmsted County, Minnesota, 1950-84. *Paediatric and Perinatal Epidemiol* 1988;2:148-157.
20. Griffin MR, Ray WA, Livengood JR, Schaffner W. Risk of Sudden Infant Death Syndrome after immunization with the Diphtheria-Tetanus-Pertussis vaccine. *N Engl J Med* 1988;319:618-623.
21. Griffin MR, Ray WA, Schaffner W. Nonsteroidal anti-inflammatory drug use and death from peptic ulcer in elderly persons. *Annals Intern Med* 1988;109: 359-363.

22. Ray WA, Griffin MR, Downey W, Melton LJ III. Long-term use of thiazide diuretics and risk of hip fracture. *Lancet* 1989;I:687-690.
23. Ray WA, Griffin MR. Use of Medicaid data for Pharmacoepidemiology. *Am J Epidemiol* 1989;129:837-849.
24. Ray WA, Griffin MR, Downey W. Benzodiazepines of long and short elimination half-life and the risk of hip fracture. *JAMA* 1989;262:3303-3307.
25. Ray WA, Griffin MR, West R, Strand L, Melton LJ III. Incidence of hip fracture in Saskatchewan, Canada, 1976-1985. *Am J Epidemiol* 1990;131: 502-509.
26. Griffin MR, Ray WA, Fenichel GM, Mortimer EA, Schaffner W. Risk of seizures and encephalopathy after immunization with the diphtheria-tetanus-pertussis vaccine. *JAMA* 1990;263:1641-1645.
27. Piper JM, Ray WA, Griffin MR, Fought R, Daugherty JR, Mitchel E Jr. Methodologic issues in evaluating expanded Medicaid coverage for pregnant women. *Am J Epidemiol* 1990;132:561-571.
28. Piper JM, Ray WA, Griffin MR. The effects of Medicaid eligibility expansion on prenatal care and pregnancy outcome *JAMA* 1990;264:2219-2223.
29. Ray WA, Griffin MR, Baugh DK. Mortality following hip fracture before and after implementation of the prospective payment system. *Arch Intern Med* 1990;150:2109-2114.
30. Ray WA, Griffin MR, Malcolm E. Cyclic antidepressants and the risk of hip fracture. *Arch Intern Med* 1991;151:754-756.
31. Griffin MR, Piper JM, Daugherty JR, Snowden M, Ray WA. Nonsteroidal anti-inflammatory drug use and hospitalization for peptic ulcer in elderly persons. *Ann Intern Med* 1991;114:257-263.
32. Griffin MR, Ray WA, Mortimer EA, Fenichel GM, Schaffner W. Risk of seizures after measles-mumps-rubella immunization. *Pediatrics* 1991;88:881-885.
33. Piper JM, Ray WA, Daugherty JR, Griffin MR. Corticosteroid use and peptic ulcer disease: the importance of nonsteroidal anti-inflammatory drugs. *Ann Intern Med* 1991;114:735-740.
34. Wenger JD, Pierce R, Deaver KA, Plikaytis BD, Facklam RR, Broome CV, The Hemophilus Influenza Vaccine Efficacy Study Group (including Griffin MR). Efficacy of Hemophilus influenza type b polysaccharide-diphtheria toxoid conjugate vaccine in US children aged 18-59 months. *Lancet* 1991;338:395-98.
35. Griffin MR, Taylor JA, Daughtery J, Ray WA. No increased risk for invasive bacterial infection found following diphtheria-tetanus-pertussis immunization. *Pediatrics* 1992;89:640-642.
36. Shorr RI, Griffin MR, Daugherty JR, Ray WA. Opioid analgesics and the risk of hip fracture in the elderly: codeine and propoxyphene. *J Gerontology* 1992;47:M111-M115.
37. Ray WA, Griffin MR, Fought RL, Adams ML. Identification of fractures from computerized Medicare files. *J Clin Epidemiol* 1992;45:703-714.
38. Griffin MR, Ray WA, Fought RL, Melton LJ. Black-White differences in fracture rates. *Am J Epidemiol* 1992;136:1378-1385.
39. Ray WA, Taylor JA, Meador KG, Lichtenstein MJ, Griffin MR, Fought R, Adams ML, Blazer DG. Reducing antipsychotic drug use in nursing homes: A controlled trial of provider education. *Arch Intern Med* 1993;153:713-721.
40. Shorr RI, Ray WA, Daugherty JR, Griffin MR. Concurrent use of nonsteroidal anti-inflammatory drugs and oral anticoagulants places elderly persons at high risk for hemorrhagic peptic ulcer disease. *Arch Intern Med* 1993;153:1665-1670.
41. Shorr RI, Ray WA, Daugherty JR, Griffin MR. Reserpine reconsidered: no association with serious peptic ulcer disease. *J Gen Intern Med* 1993;8:510-512.
42. Cowan LD, Griffin MR, Howson CP, Katz M, Johnston RB, Shaywitz BA, Fineberg HV. Acute encephalopathy and chronic neurological damage after pertussis vaccine. *Vaccine* 1993;11:1371-1379.
43. Ray WA, Griffin MR, Avorn J. Evaluating drugs after their approval for clinical use. *Sounding Board. N Engl J Med* 1993;329:2029-2032.

44. Puett DW, Griffin MR. Nonmedicinal and noninvasive therapies in osteoarthritis of the hip and knee. *Annals Intern Med* 1994;121:133-140.
45. Lichtenstein MJ, Griffin MR, Cornell JE, Malcolm E, Ray WA. Risk factors for hip fractures occurring in the hospital. *Am J Epidemiol* 1994;140:830-838.
46. Griffin MR, Daugherty JR, Reed GW, Standaert SM, Hutchins SS, Hutcheson RH, Schaffner W. Immunization coverage among infants enrolled in the Tennessee Medicaid Program. *Arch Ped Adol Med*; 1995;149:559-564.
47. Smalley WE, Ray WA, Daugherty JR, Griffin MR. Nonsteroidal anti-inflammatory drugs and the incidence of hospitalizations for peptic ulcer disease in elderly persons. *Am J Epidemiol*; 1995;141:539-545.
48. Smalley WE, Griffin MR, Fought RL, Sullivan L, Ray WA. Effects of a prior-authorization requirement on the use of nonsteroidal anti-inflammatory drugs by Medicaid patients. *N Engl J Med*; 1995;332:1612-1617.
49. Smalley WE, Griffin MR, Fought RL, Ray WA. Excess costs from gastrointestinal disease associated with nonsteroidal anti-inflammatory drugs. *J Gen Intern Med* 1996;11:461-469.
50. Burkhardt GA, Griffin MR, Ray WA, Brown N, Hammerstrom T, Freiman JP, Farrell S. Risk of angioedema in black and white Medicaid recipients exposed to ACE inhibitors. *Pharmacoepidemiol Drug Safety* 1996;5:149-154.
51. Griffin MR, Smalley WE. Drugs and ulcers: Clues about mucosal protection from epidemiologic studies. *J Clin Gastroenterol* 1995;21 (Suppl 1): S113-119.
52. Griffin MR, Brandt KD, Liang MH, Pincus T, Ray WA. Practical management of osteoarthritis. Integration of pharmacologic and nonpharmacologic measures. *Arch Fam Med* 1995;4:1049-1055.
53. Shorr RI, Ray WA, Daugherty JR, Griffin MR. Individual sulfonylureas and serious hypoglycemia in the elderly. *J Am Geriatr Soc* 1996;44:751-755.
54. Brown NJ, Ray WA, Snowden M, Griffin MR. Black Americans have an increased rate of angiotensin converting enzyme inhibitor-associated angioedema. *Clin Pharmacol Therap* 1996;60:8-13.
55. Henry D, Lim LL-Y, Garcia Rodriguez LA, Perez Gutthann S, Carson JL, Griffin MR, Savage R, Logan R, Moride Y, Hawkey C, Hill S, Fries JT. Variability in risk of gastrointestinal complications with individual non-steroidal anti-inflammatory drugs: results of a collaborative meta-analysis. *Br Med J* 1996;312:1563-1566.
56. Shorr RI, Ray WA, Daugherty JR, Griffin MR. Incidence and Risk Factors for Serious Hypoglycemia in Older Persons Using Insulin or Sulfonylureas. *Arch Intern Med* 1997;157:1681-1686.
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**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on their
own behalf and on behalf of those similarly
situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby County
Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF JOSIE HOLLAND IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Josie Holland, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. My name is Josie Holland. I am over the age of 18 and I am competent to make this declaration.

2. I have been a lawyer since October 2014, and I am licensed to practice law in the state of Tennessee (BPR #33352). I am a solo practitioner and my office is at 917 South Cooper in Memphis, Tennessee 38104. I primarily practice criminal defense in Memphis. The majority of my clients are indigent, though I do some private hire work.

3. I respectfully submit this Declaration in Support of Plaintiffs' Motion for a Temporary Restraining Order. The purpose of this Declaration is to record my familiarity with Shelby County Jail ("the Jail") prior to and during the COVID-19 pandemic and the conditions at the Jail and in which detained individuals live, which are based on what I have seen and reports I have received from my clients.

I. Familiarity with the Shelby County Jail

4. I am familiar with the Jail. In the summer of 2013, I had cause to tour the Jail as an intern at the Shelby County District Attorney's Office.

5. The detainees are housed in pods, except for those in their first 60 days of incarceration. Detainees in the first 60 days of their incarceration are housed in two-men cells on the lower levels. Each pod typically houses around 40 men, and consists of a centralized recreation area as well as individual cells holding two people each. The recreational areas are on average about 30' x 40' in size for approximately 40 men. The lower level cells are approximately 6' x 8' cages where detainees are locked 23 hours a day. The detainees sleep in bunk beds.

6. Despite the pandemic, I continue to visit the Jail approximately once every two weeks. On occasion, I go to the Jail more often.

7. When I visit the Jail, my temperature is not always taken before I go inside. Even when they do remember to take my temperature, it is unclear whether the machine registers body temperature accurately. I have seen the machine register someone's temperature at ninety-five degrees, and the result was not questioned.

8. Since mid- to late March 2020, attorneys have not been allowed to meet with their clients who are held in pods. The only way to speak with them are through recorded phone calls and video conferencing at the Jail. The video conferencing rooms have booths, numbered 1 to around 100. The booths are dirty and attorneys are given baby wipes if they wish to clean them. The booths are not fully partitioned, and it is not possible to keep a six-foot distance from other people in the booths.

II. Conditions for Detained People and Staff at the Shelby County Jail

9. My clients housed in quarantine at the Jail told me that they must drink toilet water to stay hydrated. One client told me that the toilet water came from the back tank of the toilet. Other attorneys I know have heard similar stories from their clients.

10. Since May 2020, detainees at the Jail have been given one mask each without any replacements. They do not have access to hand sanitizer. If they need soap, they must buy it from the commissary.

11. Some people are quarantined on the sixth floor, while others are quarantined on the fourth floor. I have been told by my clients that individuals with confirmed cases of COVID-19 and individuals who display symptoms of COVID-19 are housed together. For example, one of my clients had some respiratory problems and, although he tested negative, as of May 7, 2020, he was housed together with people who tested positive.

12. Whether in the lower-level cells or the Jail pods, the detainees are unable to keep apart from each other when they sleep. The beds are typically less than six feet apart. Their toilets are also less than six feet from their beds.

13. Since one of the Jail deputies died from COVID-19, my clients have told me that the deputies would not enter the individual cells of detainees. Some deputies have also refused to go into the Jail pods. The quarantined people only see a nurse coming into the pod to take their temperature once a day. My clients told me that the fourth-floor quarantine pod is largely unsupervised. Some of the inmates do not wear their masks and social distancing is not observed by the detainees or enforced by the Jail staff.

III. Delays in Court

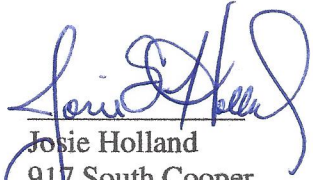
14. Tennessee courts, including those in Shelby County, have slowed down their operations in response to the COVID-19 pandemic.

15. In my experience, it takes between two and four weeks for a request for a bond reduction to be heard by the court. This is so that pre-trial services can meet with the client to gather background information. To my knowledge, during the pandemic, pre-trial services have requested a longer timeframe for bond reports. Currently, to have a bond hearing in Criminal Court, I can expect that my hearing date will be approximately one month to six weeks from the date I file my motion and request the bond hearing. This length of time varies between courtrooms.

16. An appeal of a request for a bond reduction must go to the Tennessee Court of Criminal Appeals. This process typically takes several weeks. I would estimate that an appeal from a bond hearing would take around three to four months if the parties did not request oral argument.

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

Executed this 19th day of May, 2020, in Memphis, Tennessee.



Josie Holland
917 South Cooper
Memphis, TN 38104
Phone: (731) 336-0885
Email: josiehollandlaw@gmail.com

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby
County Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF BILL POWELL
IN SUPPORT OF PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Bill Powell, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. My name is Bill Powell. I am over the age of 18 and I am competent to make this declaration.

2. I have lived in Shelby County for 57 years. Prior to my retirement, I worked in the criminal justice system in Shelby County for 39 years.

3. I am the former director of Shelby County's Pretrial Services Department. I also served as the criminal justice coordinator for the Shelby County Government and previously served as a coordinator for a settlement agreement between the Shelby County Government and the U.S. Department of Justice.

4. Through each of my capacities described above, I became familiar with the Shelby County Jail, its design, structure, and administration.

5. I make this declaration of my personal knowledge.

I. Concerns Around Shelby County Jail's Response to COVID-19

6. On March 19, 2020, I sent an email to Mark Billingsley, Chair of the Shelby County Board of Commissioners; Lee Harris, Shelby County Mayor; Karen Bartlett, Executive Assistant to Sheriff Bonner, and Shelby County Sheriff Floyd Bonner, Jr. A true and correct copy of that email is attached as **Exhibit A**.

7. The email expressed my concerns that the severity of the health issue presented by COVID-19 in the Shelby County Jail was not being adequately addressed, even in light of positive steps taken by local officials including the Sheriff.

8. I recommended that the Sheriff's Office devise a plan to release people incarcerated in the jail, starting with those only incarcerated for their inability to pay a secured bail requirement of \$10,000 or less.

9. I wrote this email because I was concerned about the significant risk posed to the health of vulnerable people in the Shelby County Jail, where individuals spend their time in close proximity to each other. Many people in the jail have risk factors that render them particularly vulnerable to serious illness or death if they contract COVID-19.

II. Scope of Sheriff's Authority to Release Medically-Vulnerable People

10. The Sheriff is vested with legal authority to release persons accused of misdemeanors without a judicial order and that this has been the case for 30 years. *See* Tenn. Code Ann. § 40-7-120.

11. A Pretrial Services department already exists in Shelby County that could supervise persons in the community while they are awaiting future court dates. I noted in my March 19, 2020 email that the Pretrial Services could easily undertake a review of an individual's case file prior to a person's release, for instance to determine if they have other holds.

12. I do not believe the Shelby County Sheriff's Office has done all that it can to address the COVID-19 outbreak or to release vulnerable people from the Jail.

13. As just one example, the Sheriff's Office continues to accept intake via misdemeanor arrests rather than issuing citations and diverting people accused of misdemeanors as authorized by statute.

III. Opinion as a Criminal Justice Stakeholder

14. I continue to hold the same concerns stated in my March 19, 2020 email today.

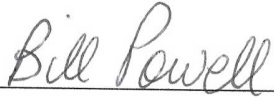
15. I believe the Shelby County Sheriff's office should take all steps to release medically-vulnerable persons from the Shelby County Jail and ensure that any necessary supervision of such persons occurs in the community or, if necessary, in a facility (i.e. a community treatment program or hospital) where they are housed in a manner that ensures their ability to follow public health protocols regarding social distancing and hygiene.

16. I believe the release of medically-vulnerable people can be undertaken in a way that ensures public safety for the Shelby County community.

17. Further, because nearly all of the individuals detained in the Shelby County Jail eventually return to their families and communities, preventing contraction of COVID-19 of the most vulnerable will promote the broader public health.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19th day of May, 2020.



Bill Powell

Exhibit A

From: [Bill Powell](#)

Sent: Thursday, March 19, 2020 9:36 AM

To: mark.billingsley@shelbycountyttn.gov; lee.harris@shelbycountyttn.gov; karen.bartlett@shelby-sheriff.org; floyd.bonner@shelby-sheriff.org

Subject: Coronavirus and the Jail

Good morning,

I read the article in the Daily Memphian this morning about concerns about coronavirus threat to those in custody at the County Jail. The extreme measures being taken by government, business and the population at large are indicative of the public health threat we all face.

Sheriff Bonner is correct that in most cases, he cannot simply release individuals from custody without judicial approval. Having the jail expeditor review cases is a good move but I would suggest it is not enough given the level of crisis we face. I would like to make the following suggestion for your consideration:

1. Prepare a planned response and take to the General Sessions and Criminal Court judges and base the plan on the following factors.
2. The plan would include releasing inmates in custody with bonds of \$10,000 or less. These individuals would be released under the supervision of Shelby County Pretrial Services during the pendency of their case. The Bond amount is some measure of the risk posed according to the magistrate who set the bond and releasing by bond amount saves a considerable amount of time screening and reviewing cases. Pretrial could do some type of quick review to insure there are no other holds in the case. If there is concern about releasing these individuals it should be noted they could obtain their own release if they had \$1,000 so, in essence, they are detained for a lack of money not because of the level of threat.
3. Encourage law enforcement to issue summons whenever possible in all misdemeanor cases. This would slow down the numbers entering the jail facility.
4. The Sheriff actually does have the authority to release misdemeanor offenders without judicial authority. This has been the case for 30 years and that authority has historically been granted to Pretrial Services. There are some exceptions to this such as if a bond has already been set on a warrant.

I would strongly encourage a dramatic response to this serious health issue. The folks in the jail are at great risk because of the close proximity to each other while detained and because many of them have other risk factors. Nearly all of these individuals will return to their family and community and their time in 201 Poplar should be limited.

Our jail suffered a crisis in 1991 when there was a riot in which use of the 4th floor was lost for some time. The judges were very helpful in revising current practices to meet that crisis. I have no doubt they will be eager to work with you on this crisis as well.

Thank you for your consideration and for the work you are doing to protect our community.

Sincerely,
Bill Powell
Billpowell55@gmail.com

Sent from [Mail](#) for Windows 10

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby
County Sheriff's Office,

Respondents-Defendants.

Case No. _____

**DECLARATION OF ANN L. SCHILLER IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Ann. L. Schiller, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. My name is Ann L. Schiller. I am over the age of 18 and I am competent to make this Declaration.

2. I am an attorney practicing criminal defense in the Shelby County courts. I am Board Certified in Criminal Law. I represent clients at all stages of their criminal prosecution and am familiar with the relevant appellate practices that accompany such representation.

3. I have been practicing law for thirteen (13) years, all of them in Shelby County.

4. I am a graduate of the University of Memphis Cecil C. Humphreys School of Law.

5. I represent clients who are currently incarcerated in the Shelby County Jail at 201 Poplar. I have visited clients in the Shelby County Jail dozens of times in the past three (3) years.

6. I make this Declaration based on my personal knowledge.

7. I respectfully submit this Declaration in support of Plaintiffs' Motion for a Temporary Restraining Order. The purpose of this Declaration is to provide facts that I have learned about the health and safety conditions at the Shelby County Jail, as well as to share information about the local court system, including the difficulties Plaintiffs and proposed class members in this action would have seeking the relief requested in their Motion in the local courts.

I. COVID-19 Concerns at the Shelby County Jail

8. My clients report that the Shelby County Jail is failing to follow well-known public health protocols to protect them from becoming infected with COVID-19.

9. For example, detainees are housed in a way that renders social distancing of six feet or more at all times impossible. My clients share that they are kept in close proximity to other inmates when they want to use certain facilities, including bathrooms, phones, and kiosks.

10. Further, the Jail does not test individuals for COVID-19 when they are booked into custody. The Jail also does not test the staff who routinely enter and exit the Jail.

11. I have had clients describe people in their unit who exhibit symptoms of COVID-19, such as coughing, fever, and general malaise, but who are not able to be seen by medical professionals.

12. The Jail has not provided my clients with reliable access to hand soap so that they can wash their hands. According to my clients, they are required to purchase any soap through the commissary. Otherwise, if they cannot afford it, it is provided only once a week.

13. The Jail has not provided my clients with hand sanitizer.

14. The Jail has not provided my clients with disinfecting supplies or other cleaning supplies.

II. Local Court Practice

15. In my experience, it takes two weeks for a request for a bond reduction to be heard by the court. To request a reduction in a client's bond or alternate conditions of pretrial release, I would have to file a written motion for bond review, wait for the State to respond, and wait for the Court to set the motion for a hearing. If the Court decided to issue a written ruling on the bond request, I estimate the process would take approximately one month to six weeks in the local courts given the current court's schedule.

16. An appeal of a request for a bond reduction goes to the Tennessee Court of Criminal Appeals. This process takes several weeks, and again involves an opportunity for the State to respond, a hearing with argument, and eventually an order from the Court of Criminal Appeals. Under pre-COVID-19 routine circumstances, this process generally took a month to six weeks.

17. For clients held at the Jail pretrial, the aforementioned is the primary way for them to seek release. State court habeas writs are available only where a petitioner raises: (1) a claim of a void judgment that was facially invalid because the convicting court was without jurisdiction or authority to sentence the defendant; or (2) a claim the defendant's sentence has expired. *Benson v. State*, 2019 WL 1388195 (Tenn. Ct. Cr. App. 2019) (citing *Stephenson v. Carlton*, 28 S.W.3d 910, 911 (Tenn. 2000)) (discussing T.C.A. §§ 29-21-101, -130). Based on both statute and settled caselaw, a habeas petition is premature prior to a conviction.

18. Tennessee courts, including those in Shelby County, have issued emergency closures and slowed their operations in response to the COVID-19 pandemic. Court cancellations can be common and vary by judge.

19. Further, even where a client gets a court date, it is unclear whether they will be transported to court as scheduled.

20. I am not aware of any vehicle in the state courts through which a class of pretrial detainees could seek relief regarding the constitutionality of their confinement in the Shelby County Jail.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 18th day of May, 2020.

Signed:



Ann L. Schiller

Attorney at Law

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TENNESSEE**

Favian Busby and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Floyd Bonner, Jr., *in his official capacity*,
Shelby County Sheriff, and the Shelby County
Sheriff's Office,

Respondents-Defendants.

Case No. _____

**FIRST DECLARATION OF JOSH SPICKLER IN SUPPORT OF
PETITIONERS-PLAINTIFFS' MOTION
FOR A TEMPORARY RESTRAINING ORDER**

I, Josh Spickler, certify under penalty of perjury that the following statement is true and correct pursuant to 28 U.S.C. § 1746:

1. My name is Josh Spickler. I am over the age of 18 and I am competent to make this declaration.

2. I am an attorney with Just City, and I am one of the counsel of record for Plaintiffs in this action. I am licensed to practice law in the state of Tennessee.

3. I respectfully submit this Declaration in support of Plaintiffs' Motion for a Temporary Restraining Order. The purpose of this Declaration is to record the conversations that I had on May 13 and 16, 2020 with Favian Busby, a person detained pre-trial at the Shelby County Jail and a Plaintiff in this action.

I. Background

4. Mr. Busby is 38 years old. He has been detained since September 2018. He is being held at Shelby County Jail on \$264,000 total bond that he cannot afford to pay. He is charged with multiple of Unlawful Possession of Controlled Substance and Convicted Felon in Possession of a Firearm.

5. Mr. Busby is a veteran of the United States Marine Corp. He served for eight years, from 2000 to 2008. He was honorably discharged after being deployed to Okinawa for three and a half years during his active service.

6. He holds a four-year degree in finance from the University of Phoenix and is a graduate of Middle College High School in Memphis. He also attended Collierville High School.

7. Mr. Busby was born and raised in Memphis. He has a 14-year old daughter and a 13-year old son who live in Memphis. He also has a 2-year old daughter who lives in New York.

8. His brother, Edward Busby, lives in Memphis. Mr. Busby would stay with his brother, Edward Busby, if he were released. He would have access to his own room and would be able to quarantine for 14 days after his release.

II. Mr. Busby's Health Conditions

9. In September 2018, Mr. Busby was diagnosed with diabetes by a qualified medical doctor at the Jail. His blood sugar is checked three times per day, and he receives injections of insulin based on his blood sugar level. His blood sugar is measured and insulin administered by a nurse in the Jail.

10. Mr. Busby has also developed hypertension secondary to diabetes, which is managed with the medication lisinopril. He is supposed to take one tablet of this medication daily, which is received from the Jail. His blood pressure is supposed to be checked on a weekly basis, but he reports that it was last checked on April 15, 2020. Because his blood pressure has not been checked recently, he is not sure if he is taking the correct amount of medication.

11. On August 31, 2018, Mr. Busby fell from a second story balcony. The fall resulted in multiple fractures of his femur and a crushed hip. On September 1, 2018, he had surgery to implant a new joint where his femur connects to his hip. The joint was taken from a cadaver. Mr. Busby's doctors are concerned about his body rejecting the joint. He was told that he may have to have an additional major surgery to get the bone to graft properly. He is supposed to receive regular blood tests to check for infection but has not received a test since April 15, 2020.

12. Mr. Busby reports that the line for medication is crowded and requires very close contact with others. It is not possible to socially distance in the medication line. Depending on the nurse dispensing medication, Mr. Busby has to stand in this line on a daily basis to receive medication for his diabetes, hypertension and surgery recovery. Some nurses come into the pod,

and some pass out meds at the entrance to the pod. Regardless of how it is handled, it is impossible to maintain six feet of distance from others in the medication line.

III. Spatial Conditions and Inability to Practice Social Distancing in H Pod

13. Mr. Busby is in H pod, which is in the annex portion of the Shelby County Jail. The pod has 32 cells on two tiers. The east side of the pod consists of cells 1-10 on the lower tier and cells 15-24. Cells 1 and 2 are for a single-person, and Mr. Busby lives in one of the single-person cells. The west side contains two tiers, with cells 25-32 on the top and cells 11-14 on the bottom. There are ten, round, four-foot in diameter tables down the middle of the pod. The guard desk and control panel sit along the north wall, and the only entrance to the pod is on the south wall. There are three showers on the south wall between the door and a supply closet. A small, mesh enclosed basketball court sits in the northwest corner of the pod. Mr. Busby reports that there are currently 42 men in H pod. Twenty-six men live in two-person cells, and 16 have a cell to themselves, including Mr. Busby and a person in the other one-person cell. There are currently three empty cells.

14. Four people in Mr. Busby's pod tested positive in the April 24th round of testing and were moved to the 6th floor. Mr. Busby's pod is on the 1st floor. Prior to those positive tests, Mr. Busby reports that the men were frequently in close proximity to other people in detention, they did not have masks, and they shared common surfaces with everyone else in H pod. Mr. Busby recounts that at least one person lost his sense of smell. Another man who tested positive accompanied Mr. Busby to the medical unit on April 15th because he didn't feel well. They removed that man to the Shelby County Detention Center without testing him. He returned on May 7, 2020 and still had a dry cough and appeared ill.

15. According to Mr. Busby, jail staff move throughout H pod in close proximity to the people being detained. Several of these staff members do not wear masks or gloves. If guards

need to access the control panel for the pod, distribute supplies, or do any number of tasks, they must cross the entire length of the pod weaving in and out of tables and chairs frequently occupied by the people housed in H pod. When the Jail changed to a COVID-19 protocol, they moved a desk into the sallyport outside the pod, but the guards still had to walk through the entire pod to get to the control desk.

16. Until May 14th, people being detained were on a rotating schedule of being allowed out of their cells for two or two and a half hours. People detained on side A would get out while people on side B were locked in their cells, and then they would switch. If a person was out during mealtime, they would eat at a small (4 feet in circumference) table with three other people. Mr. Busby reports that the tables are cleaned after each meal. Both during and after the COVID-19 protocol was in effect, people also sat at the tables to watch TV, play cards, talk, etc. People sitting at the tables are not able to keep six feet of distance between each other.

17. Mr. Busby reports that using the phone kiosk requires a person to stand shoulder to shoulder with other people. The kiosks are not sanitized or even wiped down between uses. They are only cleaned two times per day.

18. As of May 14, 2020, the Jail ended its COVID-19 protocol. Mr. Busby reports that officers are coming back in the pod more frequently, and things have returned to pre-COVID conditions in a matter of days. People are even getting haircuts in the pod again.

19. There has been no mention of re-testing, nor are officers social distancing from each other or detained people. For example, Mr. Busby has witnessed officers congregating in close proximity around a desk near his pod.

IV. Hygienic Condition in H Pod

20. According to Mr. Busby, the Jail provides a bar of soap and a small bottle of liquid soap to each detained person. Staff in the Jail often run out of soap and are unable to provide

additional bars if people run out. Mr. Busby reports that a person could go several days without soap if he runs out. Mr. Busby is able to purchase additional soap from commissary because he has funds in his commissary account. However, there are several other people who are not able to buy soap, and they may go days or longer without soap.

21. Mr. Busby reports that the pod has only been sprayed down with cleaning/sanitizing solution only once, on May 12, since concerns about the pandemic began in March 2020.

22. Mr. Busby has never seen hand sanitizer in the pod. He does not recall seeing guards or prison staff wash their hands or use hand sanitizer. The guards frequently come close to or have contact with people who are detained in the pod.

23. People detained in the Jail were provided one mask on or around April 22, 2020. Mr. Busby was only able to obtain one replacement mask by requesting one from a guard who was near him and had multiple masks in his hands. However, most of the other people detained in his pod have not received replacement masks.

V. Conditions in Other Pods

24. The pod adjacent to H pod, which has a similar layout, had three people test positive on May 8, 2020. Mr. Busby reports that occasionally, and often on weekends, when the staffing is insufficient, guards perform roving patrols in multiple pods at one time. Guards are constantly moving among the people in the pod and are often moving among different pods. Several guards do not wear masks. Those that do wear masks have used the same mask for several weeks.

25. Mr. Busby also reports that two people in pods G and J tested positive on May 8, 2020. People detained in the G and J pods are workers (known as “rockmen”), responsible for laundry, maintenance, and food preparation. After two people tested positive for COVID-19, the other men in those pods continued to perform their jobs as usual, moving throughout the Jail

performing their tasks, putting them in frequent contact with others despite having been exposed to COVID-19.

VI. Medical Treatment in Shelby County Jail

26. Mr. Busby reports that several people with COVID-19 symptoms have refused to tell nurses about their symptoms for fear of being sent to the 6th floor quarantine pods.

27. Mr. Busby reports that a man in his pod was sent out to quarantine, came back, and showed symptoms again but was not sent back to quarantine. He reports that people are not really being quarantined.

28. On May 19, 2020, two men from the quarantine pod 6A returned to H pod and described a very crowded quarantine environment where people were sleeping in “boats” on the floor and the conditions were described as filthy. Mr. Busby reports that there were more than 60 men in each of three pods on the 6th floor. One of the men who returned to H pod had been hospitalized due to COVID-19.

VII. Grievance

29. Mr. Busby filed a grievance on May 11, 2020, in which he requested PPE and to be allowed to comply with social distance recommendations. He asked for the Jail to release him if they could not provide those things. As of May 19th, he had not received any response to his grievance.

30. Mr. Busby has been paying close attention to news about COVID-19 and its spread throughout the community. He described an area within his pod where he maintains a collection of news clippings about the pandemic. Consequently, he is highly aware of the disease, how easily it spreads, and his particular vulnerability to severe illness or death given his diabetes and hypertension. He consistently expressed concern about his inability to follow the recommendations

of public health experts. He feels a great deal of anxiety about contracting COVID-19 while he remains in the Jail and often cannot sleep because he is so worried.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed on this 20th day of May, 2020 Memphis, Tennessee

/s/ Josh Spickler
Josh Spickler
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**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE
WESTERN DIVISION**

Favian Busby; and Michael Edgington, *on
their own behalf and on behalf of those
similarly situated*;

Petitioners-Plaintiffs,

v.

Shelby County Sherriff's Office; and Floyd
Bonner, Jr., *in his official capacity*, and the
Shelby County Sheriff;

Respondents-Defendants.

Case No. _____

**DECLARATION OF MICHAEL R. WORKING IN SUPPORT OF PETITIONERS-
PLAINTIFFS' MOTION FOR A TEMPORARY RESTRAINING ORDER**

I, Michael Working, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I am an attorney practicing criminal defense in the Shelby County courts. I represent clients at all stages of their criminal prosecution, and I am familiar with the relevant appellate practices that accompany such representation.

2. I have been practicing law for fourteen (14) years.

3. I have practiced criminal defense for thirteen (13) of those years in Shelby County.

4. I am a graduate of The University of Memphis School of Law.

5. I am the President-Elect of the Tennessee Association of Criminal Defense Lawyers, and beginning in July, 2020, I will serve as President of the Tennessee Association of Criminal Defense Lawyers (“TACDL”) for a term of one year. I will then serve another year advising the ensuing President.

6. I continue to represent clients who are incarcerated in the Shelby County Jail at 201 Poplar. I have visited clients in the Shelby County Jail hundreds of times in the past 13 years.

7. I make this declaration of my personal knowledge based on conversations with my clients and familiarity with customs and practices inside the jail.

I. COVID-19 Concerns at the Shelby County Jail

8. Several of my clients have tested positive for the novel coronavirus. Several have not been tested despite being housed near and sharing a ventilation system with those who have tested positive for the virus.

9. Communication with clients has been almost impossible during the pandemic.

10. A process for privileged and private communications between defendants and attorneys is not currently provided by the Shelby County Sheriff’s Office.

11. Video conferencing is the only method available for communicating with most inmates. Those calls occur on a system with a sign posted above the screen that says to the best of my recollection, “these calls are being recorded.”

12. After the defense bar raised this concern with local judges, several attorneys informed me that the sign now says the calls are not being recorded.

13. I have seen the calls played before juries and believe that the calls can still be recorded. I have no direct knowledge of whether the calls are being recorded.

14. During the few opportunities I have had to communicate with clients via a five-minute free phone call that they are allowed, defendants mostly try to pass messages about their health status to their families.

15. My clients that have been able to contact me report that the Shelby County Jail is not adhering to public health protocols to protect them from contracting COVID-19 in the Jail.

16. For example, the Jail does not house detained people in a way that allows for social distancing of six feet or more at all times. Most clients are housed in open pods that do not allow for social distancing, but are encouraged to social distance the best they can by the staff.

17. Additionally, clients have reported the difficulty in receiving basic humanitarian and hygienic services in the jail.

18. The Jail has not provided any of my clients with any hand sanitizer.

19. The Jail has not provided my clients with disinfecting supplies or cleaning supplies.

20. The Jail has not provided my clients with reliable access to hand soap so that they can wash their hands. All clients have informed me that soap must be purchased through an inmate’s private commissary account. If an inmate cannot afford commissary, the Jail issues that inmate one bar of soap per week.

21. Clients have also reported that, due to depleted staff, their clothes had not been cleaned in the laundry for an entire week, meaning that detained people wore the same clothes for one week.

22. Further, the Jail does not test individuals for COVID-19 when they are booked into custody, nor does it test all staff who enter and exit the Jail on a daily basis.

23. I have had clients describe people in their pod who exhibit symptoms of COVID-19, including constant coughing, and various other symptoms of the virus. Those people have not been tested for COVID-19. One client noted that symptomatic detainees remained in their housing unit for “about two weeks” without ever being tested.

24. All clients state that jail staff or working detainees enter their pod to provide meals three times daily and a fourth time for mail call as is the regular practice before the pandemic.

25. Some clients have described that new people are added to their pod regularly about every other day. Others lawyers have told me that their clients have stated that they are housed in the “program pod” and new people have not been placed in their pod for seven months.

26. According to clients that tested positive for the virus and were assigned to sixth floor COVID-19 quarantine pods, those infected with the virus were also not provided hand sanitizer and were not allowed any soap other than the policy described above in ¶¶ 18-20.

27. Several clients housed on the fifth floor have expressed concern about contracting a respiratory virus from COVID-19 positive detainees quarantined on the sixth floor as both groups are breathing the same air through the same ventilation system.

II. Practices in Local Courts

28. In my experience, it typically takes at best five business days for a request for a bond reduction motion to be heard by the court.

29. To revisit a client's initial *ex parte* bond setting, I would have to file a written motion for bond review, submit an order for a pre-trial report to be submitted to the trial court, possibly wait for the State to respond, and then set it on for a hearing. If the Court decided to issue a ruling on the bond request, I estimate the process would take approximately five days to two weeks in the local courts.

30. An appeal of a request for a bond reduction goes to the Tennessee Court of Criminal Appeals. This process typically takes several weeks, and again involves an opportunity for the state to respond, and an eventual order from the Court of Criminal Appeals. I estimate that this process under normal circumstances generally takes a month to six weeks.

31. For clients in jail pre-trial, this process is the primary method for seeking release.

32. To my knowledge, by statute, a state court writ of habeas corpus is only available where a petitioner raises: (1) a claim that a void judgment was facially invalid because the convicting court was without jurisdiction or authority to sentence the defendant; or (2) a claim that a defendant's sentence has expired. *Benson v. State*, 2019 WL 1388195 (Tenn. Ct. Cr. App. 2019) (discussing T.C.A. §§ 29-21-101, -130, citing *Stephenson v. Carlton*, 28 S.W.3d 910, 911 (Tenn. 2000)). To my knowledge, a habeas petition in the Tennessee state courts is not available for pre-trial detainees.

33. Tennessee courts, including those in Shelby County, are issuing emergency closures and significantly slowing their operations in response to the COVID-19 pandemic.

34. Even when a client gets a court date, it is highly reliable that a defendant will not be transported to court as scheduled. Jail staff sometimes refuses to transport clients due to COVID-19 concerns.

35. All transportation between inmates in TDOC facilities and local jails has stopped.

36. Clients are also usually not brought to court from the attached jail. Until today, I had not seen any defendant, even those who are not my client, brought into a courtroom since March 10th, 2020 just days before the statewide court closure.

37. Court cancellations are common and vary by judge. Some court dates for incarcerated inmates are reset prior to court opening. Cases may also be reset prior to defense counsel being allowed into the courtroom because a particular prosecutor may not be present.

38. I am not aware of any avenue in the state court system through which a class of pretrial detainees could seek relief regarding the constitutionality of their confinement in the Shelby County Jail. As a TACDL officer, I have researched this issue often.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20 day of May, 2020.

/s/ Michael R. Working

Michael R. Working, TN BoPR #025118
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