EXECUTIONS SCHEDULED FOR JANUARY 14 & 15, 2021 AT 6:00 P.M. E.T.

No. __-____

IN THE SUPREME COURT OF THE UNITED STATES

DUSTIN HIGGS AND COREY JOHNSON,
Petitioners,

v.

WILLIAM P. BARR, ATTORNEY GENERAL, et al.,
Respondents.

CAPITAL CASE

APPENDIX

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PAGE(S)

I. RELEVANT PROCEDURAL HISTORY

January 14, 2021

Respectfully submitted,

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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases,	)	
LEAD CASE: *Roane, et al. v. Barr*	)	Case No. 19-mc-145 (TSC)
THIS DOCUMENT RELATES TO:	)	
Roane v. Barr, 05-cv-2337	)	

MEMORANDUM OPINION

With over 376,000 Americans dead and more than twenty-one million infected, the COVID-19 pandemic "need[s] no elaboration." *Merrill v. People First of Ala.*, 141 S. Ct. 25, 26 (2020) (Sotomayor, J., dissenting). And with each day bringing a new record number of infections, "the COVID-19 pandemic remains extraordinarily serious and deadly." *Roman Cath. Diocese of Brooklyn v. Cuomo*, 141 S. Ct. 63, 73 (2020) (Kavanaugh, J., concurring).

Among the most susceptible to the spread of COVID-19 is the prison inmate population. As several outbreaks have shown, "COVID-19 can overtake a prison in a matter of weeks." *Valentine v. Collier*, 141 S. Ct. 57, 62 (2020) (Sotomayor, J., dissenting) (discussing one facility which recorded over 200 cases, 5 deaths, and 12 hospitalizations in less than three weeks). This is unsurprising given that most inmates are unable to socially distance, have limited access to adequate testing, and are often housed in buildings with poor circulation.

Despite the pandemic, and the current record high rates of infections and fatalities, Defendants intend to go forward with the scheduled executions of Plaintiffs Cory Johnson and Dustin Higgs on January 14 and 15, 2021, although both men have been diagnosed with COVID-

19. Higgs and Johnson are housed at the Federal Correctional Institution in Terre Haute, Indiana, a facility experiencing its own "massive COVID-19 outbreak." Michael Balsamo & Michael R. Sisak, *Execution staff have COVID-19 after inmate put to death*, AP News (Dec. 8, 2020), https://apnews.com/article/prisons-coronavirus-pandemic-executions-terre-haute-indiana-e80af6a566bbff50ed5e9a097c305dbb.

Defendants intend to carry out the executions according to the procedures set forth in the Federal Bureau of Prisons 2019 Execution Protocol (the 2019 Protocol), which includes a lethal injection of five grams of pentobarbital. Plaintiffs received notice of their diagnoses less than a month before their executions—after Defendants assured the court that "allegations regarding the prevalence of COVID-19 at [] Terre Haute . . . are dated" and that adequate procedures were in place to protect the inmate population. (ECF No. 306-1 at 10 n.3.) Plaintiffs have asked the court to enjoin their executions, arguing that injection of a lethal dose of pentobarbital given their COVID-19 infections will cause them to suffer an excruciating death. Specifically, they argue that damage to their lungs and other organs will cause them to experience the sensation of drowning caused by flash pulmonary edema almost immediately after injection but before they are rendered unconscious.

Defendants argue that Plaintiffs' claims here are the same as those previously rejected by the Supreme Court. (*See* ECF No. 380, Defs. Opp'n at 17.)[1] The court disagrees. Plaintiffs have

[1] Citing Sixth Circuit precedent, Defendants also argue that "even if any of the inmates did briefly experience the effects of 'flash' pulmonary edema prior to becoming insensate, it would not suffice to establish a violation of the Eighth Amendment." (Def. Opp'n at 16 (citing *In re Ohio Execution Protocol Litig.*, 946 F.3d 287, 298 (6th Cir. 2019) (holding that pulmonary edema does not "qualify as the type of serious pain prohibited by the Eighth Amendment.")).) This is at odds with D.C. Circuit precedent, which found that flash pulmonary edema could indeed give rise to an Eighth Amendment violation. *See Execution Protocol Cases*, 980 F.3d at 132. Defendants similarly contend that in *Bucklew*, the Supreme Court "rejected an Eighth Amendment challenge to a single-drug pentobarbital protocol "as applied to a prisoner with a

pleaded as-applied Eighth Amendment challenges based on their specific health conditions. Moreover, they allege that their health has been worsened by their infection with COVID-19, an illness which has resulted in a global pandemic for the better part of a year. Given these unique circumstances, the court held an evidentiary hearing to assess the credibility of the parties' expert opinions.

Having heard and reviewed the expert testimony, the court finds that Plaintiffs are likely to succeed on the merits of their as-applied Eighth Amendment challenge. Specifically, they have demonstrated that as a result of their COVID-19 infection, they have suffered significant lung damage such that they will experience the effects of flash pulmonary edema one to two seconds after injection and before the pentobarbital has the opportunity to reach the brain. This will subject Plaintiffs to a sensation of drowning akin to waterboarding, a side effect that could be avoided were Defendants to implement certain precautions, such as administering a pre-dose analgesic or carrying out the execution by firing squad.

For the reasons set forth below, and in light of these unprecedented circumstances, the court will grant a *limited* injunction to allow Plaintiffs the opportunity to adequately recover from COVID-19, at which point it will evaluate whether to extend the injunction in light of any new medical evidence submitted by the parties.

I. BACKGROUND

After a hiatus of more than fifteen years, on July 25, 2019, the Department of Justice announced plans to resume federal executions. *See* Press Release, Dep't of Justice, Federal

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unique medical condition that could only have increased the baseline risk of pain associated with pentobarbital." (Defs. Opp'n at 17 (discussing *Bucklew*, 140 S. Ct. at 2159).) The D.C. Circuit disagrees. "Allegations regarding flash pulmonary edema were not [] before the Supreme Court in *Bucklew*." *Execution Protocol Cases*, 980 F.3d at 131.

Government to Resume Capital Punishment After Nearly Two Decade Lapse (July 25, 2019), https://www.justice.gov/opa/pr/federal-government-resume-capital-punishment-after-nearly-two-decade-lapse. To implement these executions, the Federal Bureau of Prisons (BOP) adopted a new execution protocol: the 2019 Protocol. (ECF No. 39-1, Admin. R. at 1021–75.)

On September 1, 2020, the court granted Higgs' unopposed motion to intervene in *Roane v. Gonzales*, No. 05-2337, a case brought by several death row inmates (including Plaintiff Cory Johnson) challenging the legality of the 2019 Protocol. (ECF Nos. 229, 229-1.)[2] Higgs' claims were largely the same as those asserted by the other Plaintiffs, with one exception: he brought an as-applied challenge under the Eighth Amendment, alleging that because of his asthma and because he believed that had contracted COVID-19 in February 2020, he faced a unique and individualized risk of serious harm if executed using pentobarbital. (ECF No. 229-1 ¶¶ 166–72.)

Defendants moved to dismiss Higgs's as-applied claim, (*see* ECF No. 306), arguing that the claim was speculative because Higgs did not allege that he had tested positive for COVID-19, nor had he actually suffered lung damage from the disease. The court agreed and granted the motion on December 9, 2020. (ECF Nos. 354–55.)

During a status conference on December 17, 2020, Higgs' counsel reported that Higgs had tested positive for COVID-19. Higgs was granted leave to file a Second Amended and Supplemental Complaint, (ECF No. 370), in which he alleges that his heart condition, combined with his asthma, puts him at a greater risk of pulmonary edema, which is further aggravated by

[2] The case originated as a challenge to the federal government's death penalty procedures in 2005 but was subsequently amended to challenge the 2019 Protocol.

his COVID-19 diagnosis.[3] Higgs also filed a second motion for a preliminary injunction. (ECF No. 371, Higgs Mot.)

On December 16, 2020, Johnson also tested positive for COVID-19 and was also permitted to file a supplemental complaint and motion for a preliminary injunction. (*See* ECF No. 372; ECF No. 373.) Johnson's allegations are similar to Higgs' except Johnson does not allege any underlying medical conditions, and he has experienced slightly different symptoms. (*See generally* ECF No. 375, Johnson Mot.)

Defendants argue that Plaintiffs have shown only that there is competing testimony between credible experts, which is insufficient to succeed on a method-of-execution Eighth Amendment claim.

On January 4 and 5, the court held an evidentiary hearing to assess the expert testimony proffered on Plaintiffs' COVID-19 related claims. Drs. Kendall von Crowns and Todd Locher testified for Defendants and Drs. Gail Van Norman and Michael Stephen testified for Plaintiffs.[4]

II. ANALYSIS

A preliminary injunction is an "extraordinary remedy" requiring courts to assess four factors: (1) the likelihood of the plaintiff's success on the merits, (2) the threat of irreparable harm to the plaintiff absent an injunction, (3) the balance of equities, and (4) the public interest. *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20, 24 (2008) (citations omitted); *John Doe Co. v. Consumer Fin. Prot. Bureau,* 849 F.3d 1129, 1131 (D.C. Cir. 2017). The D.C. Circuit has traditionally evaluated claims for injunctive relief on a sliding scale, such that "a strong showing

[3] Higgs has another Amended and Supplemental Complaint and accompanying motion for a preliminary injunction pending before the court. (*See* ECF Nos. 343–44.) The court will address that motion for a preliminary injunction in a separate opinion.

[4] The court also briefly heard from Dr. Mitchell Glass, who was slated to testify in favor of Plaintiffs, but his testimony was stricken on Defendants' unopposed motion.

on one factor could make up for a weaker showing on another." *Sherley v. Sebelius,* 644 F.3d 388, 392 (D.C. Cir. 2011). It has been suggested, however, that a movant's showing regarding success on the merits "is an independent, free-standing requirement for a preliminary injunction." *Id.* at 393 (quoting *Davis v. Pension Benefit Guar. Corp.*, 571 F.3d 1288, 1296 (D.C. Cir. 2009) (Kavanaugh, J., concurring)).

A. Likelihood of Success on the Merits

Plaintiffs bringing an Eighth Amendment challenge to a method of execution face a high bar. They must demonstrate that the 2019 Protocol presents a "substantial risk of serious harm," and they must identify an alternative method of execution that will significantly reduce the risk of serious pain and that is feasible and readily implemented. *Glossip v. Gross*, 576 U.S. 863, 877 (2015) (quoting *Baze v. Rees*, 553 U.S. 35, 50 (2008)); *see also Bucklew v. Precythe*, 139 S. Ct. 1112, 1129 (2019) (confirming that "anyone bringing a method of execution claim alleging the infliction of unconstitutionally cruel pain must meet the *Baze-Glossip* test."). Indeed, the Supreme Court "has yet to hold that a State's method of execution qualifies as cruel and unusual." *Bucklew*, 139 S. Ct. at 1124.

The court has been down this road before. In July, it enjoined four executions on the basis that the use of pentobarbital would subject Plaintiffs to suffer a cruel and unusual death in violation of the Eighth Amendment. In so ruling, the court found that Plaintiffs had provided scientific evidence that "overwhelmingly" indicated they would suffer the effects of flash pulmonary edema, including a sensation of drowning, while they were still conscious. (ECF No. 135 at 9.) The court weighed the declarations of several experts, including Drs. Gail Van Norman and Joseph Antognini.

On appeal, the Supreme Court vacated this court's injunction, concluding that Plaintiffs were unlikely to succeed on the merits of their Eighth Amendment claim. *See Barr v. Lee*, 140 S. Ct. 2590, 2591 (2020). The Court noted that pentobarbital "has become a mainstay of state executions . . . [h]as been used to carry out over 100 executions, without incident," and was upheld "as applied to a prisoner with a unique medical condition that could only have increased any baseline risk of pain associated with pentobarbital as a general matter." *Id.* The Court acknowledged Plaintiffs' expert declarations regarding flash pulmonary edema but noted that "the government has produced competing evidence of its own, indicating that any pulmonary edema occurs only *after* the prisoner had died or been rendered fully insensate." *Id.* In light of the competing evidence—and despite this court's assessment that Plaintiffs' evidence was more credible—the Supreme Court found that Plaintiffs had "not made the showing required to justify last-minute relief." *Id.* It further emphasized that "[l]ast-minute stays" must be "the extreme exception, not the norm." *Id.* (quoting *Bucklew*, 139 S. Ct. at 1134).

Given the Supreme Court's decision in *Lee*, this court subsequently dismissed Plaintiffs' general Eighth Amendment claim, finding that "no amount of new evidence will suffice to prove that the pain pentobarbital causes reaches unconstitutional levels." (ECF No. 193 at 4.) The D.C. Circuit reversed. "By pleading that the federal government's execution protocol involves a 'virtual medical certainty' of severe and torturous pain that is unnecessary to the death process and could readily be avoided by administering a widely available analgesic first, the Plaintiffs' complaint properly and plausibly states an Eighth Amendment claim." *In Re Fed. Bureau of Prisons Execution Protocol Cases*, 980 F.3d 123, 133 (D.C. Cir. 2020). However, the Court of Appeals noted that Plaintiffs had a "difficult task ahead [] on the merits" and that if all they could produce was a "'scientific controvers[y]' between credible experts battling between 'marginally

safer alternative[s],' their claim is likely to fail on the merits." *Id.* at 135 (quoting *Baze v. Rees*, 553 U.S. 35, 51 (2008)).

1. Substantial Risk of Serious Harm

In order to succeed on their Eighth Amendment claim, Plaintiffs must show that execution under the 2019 Protocol presents a risk of severe pain that is "sure or very likely to cause serious illness and needless suffering" and gives rise to "sufficiently imminent dangers," such that prison officials cannot later plead "that they were subjectively blameless." *Baze*, 553 U.S. at 49–50 (citations omitted). Although the Supreme Court has cautioned against federal courts becoming "boards of inquiry charged with determining 'best practices' for executions," *id.* at 51, this question necessarily requires some weighing of scientific evidence. *See, e.g.*, *Glossip*, 576 U.S. at 881 (affirming district court's findings that midazolam was "highly likely" to render inmates unable to feel pain during execution).

It is undisputed that both Higgs and Johnson have been diagnosed with COVID-19 and have been exhibiting symptoms consistent with that diagnosis, including shortness of breath, an unproductive cough, headaches, chills, fatigue, etc. To date, neither has been hospitalized or required treatment in an intensive care unit.

It is further undisputed that Plaintiffs will suffer flash pulmonary edema as a result of the 2019 Protocol, "a medical condition in which fluid rapidly accumulates in the lungs causing respiratory distress and sensation of drowning and asphyxiation." *See Execution Protocol Cases*, 980 F.3d at 131. Thus, the question is whether these two Plaintiffs will experience the symptoms of flash pulmonary edema while they are still conscious, an issue that has been the subject of much debate amongst the experts in this case. After the Supreme Court's decision in *Lee*, this court has found that the question of whether an inmate, *absent aggravating factors*, will suffer

flash pulmonary edema while sensate is one on which reasonable minds can differ. (*See* ECF No. 261 at 38.)[5]

But the issue presently before the court is whether Plaintiffs will suffer flash pulmonary edema while sensate given the extensive lung damage they have suffered from COVID-19. The court had not previously received expert testimony on this issue. And having no meaningful way to resolve the dispute on the expert declarations alone, it exercised its discretion and held an evidentiary hearing.

"A preliminary injunction may be granted on less formal procedures and on less extensive evidence than a trial on the merits, but if there are genuine issues of material fact raised . . . an evidentiary hearing is required." *Cobell v. Norton*, 391 F.3d 251, 261 (D.C. Cir. 2004) (internal citations omitted); *but see* LCvR 65.1(d) ("The practice in this jurisdiction is to decide preliminary injunction motions without live testimony *where possible*." (emphasis supplied)). And where "a court must make credibility determinations to resolve key factual disputes in favor of the moving party, it is an abuse of discretion for the court to settle the question on the basis of documents alone, without an evidentiary hearing." *Cobell*, 391 F.3d at 262 (citing *Prakash v. Am. Univ.*, 727 F.2d 1174, 1181 (D.C. Cir. 1984)); *see also* Alan Wright & Arthur R. Miller, 11A Fed. Prac. & Proc. Civ. § 2949 (3d ed. 1998) (explaining that when a motion for a preliminary injunction "depends on resolving a factual conflict by assessing the

[5] In denying injunctive relief for Plaintiffs' Food, Drug, and Cosmetic Act claim, the court previously found that they had failed to demonstrate that they were sure to suffer flash pulmonary edema while they were sensate. (*See* ECF No. 261 at 40.) But in doing so, the court did not find that Defendants' experts had definitively answered the question. Rather, the court found that given the expert testimony—which did not involve individual medical records—Plaintiffs had failed to meet their burden. Furthermore, that dispute centered on the question of whether *every* plaintiff executed with pentobarbital would suffer flash pulmonary edema before being rendered insensate. The dispute here involves aggravating factors not previously before the court.

credibility of opposing witnesses, it seems desirable to require that the determination be made on the basis of their demeanor during direct and cross-examination, rather than on the respective plausibility of their affidavits.").

i. COVID-19 Lung Damage – Higgs

Dr. Gail Van Norman, an anesthesiologist and professor in the Department of Anesthesiology and Pain Medicine at the University of Washington in Seattle, opined that "the COVID-19 virus leads to significant lung damage" and that "[f]or prisoners experiencing COVID-related lung damage at the time of their execution, flash pulmonary edema will occur even earlier in the execution process, and before brain levels of pentobarbital have peaked." (ECF No. 374-1, Van Norman Supp. Decl. at 1.) "To a reasonable degree of medical certainty, these prisoners will experience sensations of drowning and suffocation sooner than a person without COVID-related lung damage and, therefore, their conscious experience of the symptoms of pulmonary edema will be prolonged." (*Id.*) She explained that COVID-19 causes "severe damage to many areas in the airways and lungs, but most specifically to the alveolar-capillary membrane, which is also the site of damage of massive barbiturate overdose." (*Id.* at 2.) These effects "can be seen by radiography in . . . at least 79% of patients who have symptomatic COVID-19 infection, even when such infections are mild." (*Id.*) Damage to the lungs may eventually resolve, though studies indicate that "severe pulmonary functional changes have been demonstrated for more than 90 days after infection." (*Id.*; *see also id.* at 5 (listing studies).) She reiterated these points during her direct examination.

The court found Dr. Van Norman highly credible. She testified that she has personally tended to patients hospitalized with COVID-19 who needed airway management, which included administering anesthesia. (*See* ECF No. 389, H'rg Tr. at 145.) She also testified that when

pentobarbital is injected, it flows first to the heart and is then pumped to the lungs before going to the rest of the body. (*Id.* at 147.) Because pentobarbital is caustic, a high concentration dose will burn the alveoli-capillary membrane in the lungs within a second or two of injection. (*Id.* at 192.) A person with COVID-19 related lung damage will experience flash pulmonary edema before the pentobarbital reaches the brain. (*Id.* at 147–48.) Dr. Van Norman also explained that while pentobarbital's anesthetic effect can take anywhere from thirty seconds to two-and-a-half minutes, it takes longer to reach peak effectiveness. (*Id.* at 150.) Thus, Plaintiffs will suffer the effects of flash pulmonary edema anywhere from thirty seconds to two-and-a-half minutes after injection.

Dr. Van Norman provided credible and persuasive responses to criticism of her opinions. In his fifth amended declaration, Defendants' expert, Dr. Joseph Antognini criticized Dr. Van Norman for not: 1) providing published evidence that asymptomatic or mildly symptomatic patients have increased propensity for pulmonary edema when administered lethal doses of pentobarbital; 2) providing published evidence that pulmonary damage increases the risk of pulmonary edema from pentobarbital; and 3) specifying when the onset of the pulmonary edema might occur in someone who has suffered COVID-19 lung damage. (ECF No. 380-2, Antognini 5th Supp. Decl. ¶¶ 3–5.) As to the first two criticisms, Dr. Van Norman explained that there are no such studies because no physician or scientist has administered massive overdoes of intravenous pentobarbital to COVID-19 patients. (*Id.* at 153.) Dr. Van Norman also stated that, in her opinion, inmates with lung damage from COVID-19 will experience flash pulmonary edema within a second or two after injection, before pentobarbital has reached the brain. (*Id.* at

192 (explaining that pentobarbital is "a caustic chemical" which is "going to attack an already leaky membrane").)[6]

The court found Dr. Antognini's opinions less helpful.[7] Although he faulted Dr. Van Norman for not providing support for her conclusions, Dr. Antognini's opinions regarding the effect of a pentobarbital injection on a person with COVID-19 symptoms were themselves conclusory. In fact, Dr. Antognini cited two studies in his entire declaration, neither of which involved COVID-19. His declaration did not indicate whether he even treats COVID-19 patients. (Antognini Fifth Supp. Decl. ¶ 5.) Relying in large part on his prior testimony, he stated that "unconsciousness occurs when a clinical dose of pentobarbital is administered (around 500 mg—a tenth of the execution dose)." (*Id.*) This statement does not address Dr. Van Norman's explanation that injected pentobarbital will begin to attack damaged lungs before it reaches the brain, and Dr. Antognini did not proffer how long it would take for an inmate to be rendered unconscious. Thus, his declaration did not adequately refute Dr. Van Norman's opinions.

Dr. Michael Stephen corroborated Dr. Van Norman's theory regarding lung damage. During his testimony, Dr. Stephen, an associate professor in the Department of Medicine and Division of Pulmonary and Critical Care at Thomas Jefferson University, who actively treats and reviews x-rays of COVID-19 patients, interpreted x-rays of Higgs' lungs taken in October 2018 and December 2020. Dr. Stephen testified that Higgs' lungs were severely hyperinflated, as

[6] On cross examination, Dr. Van Norman admitted that she was opposed to the death penalty, but the court has no reason to believe her opposition has biased her scientific assessments, particularly in light of other evidence in the record.

[7] Defendants did not call Dr. Antognini as a witness and Plaintiffs declined to call him for cross-examination.

shown by the fact that on the x-ray, his lungs could not fit on one lung plate. (H'rg Tr. at 99.) Consequently, he explained, the radiologist had to take three views, which in Dr. Stephen's experience was very rare absent a very serious obstructive lung disease such as asthma. (*Id.*) Dr. Stephen also explained that chest x-rays typically only show seven to nine ribs, but Higgs' x-ray films showed eleven ribs, which indicated that Higgs has so much air in his lungs from poorly controlled asthma that his diaphragm is being pushed down, causing the x-ray to capture more ribs than it normally would. (*Id.*) Dr. Stephen also noted evidence of a tabletop (or flat) diaphragm that has become exaggerated between 2018 and 2020, suggesting severely poorly controlled asthma. (*Id.* at 99–100.)

Dr. Stephen's testimony was particularly persuasive and helpful, as he walked the court through a comparison of Higgs' lung images to show the extensive damage caused by COVID-19. As was readily apparent, the right lung exhibited more opacity in certain areas in 2020 than in 2018. (*Id.* at 95.) Dr. Stephen described these opacities as interstitial markings, which are more visible as a result of inflammation caused by "viral pneumonia from COVID-19." (*Id.* at 97.) Because of this inflammation, he concluded that Higgs' alveoli-capillary membrane has already been breached by COVID-19 particles, and white blood cells are flooding into his lungs to combat them. (*Id.* at 97.) Thus, he concluded, Higgs' heart will be pumping very hard to supply blood to the inflamed parts of the lung, a condition that places Higgs at high risk for pulmonary edema. (*Id.* at 98.)

To rebut Drs. Van Norman and Stephen's testimony, Defendants submitted a declaration from Dr. Todd Locher. Interpreting studies relied upon by Drs. Van Norman and Stephen, Dr. Locher opined that "asymptomatic and mildly symptomatic cases [of COVID-19] have a lower percentage of lung involvement." (ECF No. 381-1, Locher Decl. ¶ 11.) After reviewing both

Higgs' and Johnson's medical records, Dr. Locher concluded that both men were experiencing "minimal symptoms." (*Id.* ¶ 12.) With regard to Higgs' x-rays, Dr. Locher agreed with Dr. Justin Yoon, the interpreting radiologist proffered by the government, that there was no "acute cardiopulmonary process" and that Higgs had clear lungs "except for an unchanged right apical reticular nodular density." (*Id.*) He concluded that there was "no evidence [] of lung involvement due to COVID-19." (*Id.*)

Dr. Locher further noted that "there is no evidence in the medical literature suggesting an injection with pentobarbital would somehow exacerbate symptoms or physiologic abnormalities in patients with COVID-19." (*Id.* ¶ 14.) Thus, he concluded, "if pulmonary edema were to occur upon the injection of 5 g of pentobarbital, it is not likely that these inmates would experience pulmonary edema more quickly or severely than inmates who have been diagnosed with COVID-19." (*Id.*)

The court is unpersuaded by this testimony. For one, as Dr. Van Norman explained, there have been no studies involving the injection of large doses of pentobarbital in COVID-19 patients, nor would one expect any. Dr. Locher also stated that a chest x-ray is not as sensitive as a CT scan in detecting lung involvement for COVID-19, but nevertheless concluded that "any findings on a CT scan would likely be minor in view of a normal chest x-ray." (*Id.* ¶ 13.) He appeared to be relying on a less accurate measurement to postulate that a more accurate one would be less useful.

Dr. Locher's live testimony cast further doubt on his credibility. On cross-examination, it was unclear how closely he had reviewed the relevant medical records. For instance, his declaration stated that Higgs was not experiencing any symptoms on December 29, 2020, despite the fact that Higgs' medical records indicates he had a persistent cough. (*Compare* Locher Decl.

¶ 12 ("On 12/29/2020, the medical record reports no shortness of breath, sore throat or other symptoms"), *with* ECF No. 380-4, Smilege Decl. at 58 ("Cough (Duration/Describe: persistent").) Similarly, Dr. Locher's declaration states that Johnson exhibited no symptoms of COVID-19 on December 22 and 23, whereas the records clearly indicate Johnson reported a headache on December 22. (*Compare* Locher Decl. ¶ 12, *with* Smiledge Decl. at 138.) Dr. Locher confirmed during cross-examination that a headache is indeed a common symptom of COVID-19. (H'rg Tr. at 65.) These inaccuracies alone do not cast Dr. Locher's entire testimony in doubt, but they do call into question the amount of time he spent reviewing the evidence, particularly in light of his conclusion that Higgs and Johnson have had mild cases of COVID-19, and the implication that their cases have mostly resolved. (*See* Locher Decl. ¶ 12.) Indeed, Dr. Locher stated that it would not surprise him if either Higgs or Johnson reported persistent shortness of breath into January. (Hr'g Tr. at 72.)

More concerning was Dr. Locher's interpretation of Higgs' x-rays. In his declaration, Dr. Locher agreed with Dr. Yoon, the reviewing radiologist that Higgs' 2020 x-ray indicated a "stable chest examination without acute cardiopulmonary process" and that Higgs has "[c]lear lungs except for unchanged right apical reticular density" when compared to the 2018 x-rays. (Locher Decl. ¶ 12.) He reiterated his opinion that Higgs' 2020 x-ray was "unchanged compared to the previous file dated in October 2018" aside from a small upper right lobe shadow. (H'rg Tr. at 60.) Comparing the two images, one does not have to be an expert to see that this statement is inaccurate. As Dr. Stephen pointed out, the right lung in the 2020 image has more prevalent cloudier streaks when compared to the same lung in 2018. The opacity is present in the left lung, but not to the same extent, which suggests that this is not merely an imaging error. It is troubling that Dr. Locher did not account for these obvious differences between the two

scans, even when asked about Dr. Stephen's assessment by Defendants' counsel during direct examination. Instead, he merely stated his disagreement with Dr. Stephen. (*See id.*)

And while Dr. Locher reached the same conclusion as Dr. Yoon, the court has little information on Yoon, who was not called to testify and who did not submit a declaration in support of his conclusions.[8] The court does not know if Dr. Yoon routinely reviews x-rays of COVID-19 patients.

Based on the declarations and live testimony, the court finds that Higgs has shown that if his execution proceeds as scheduled—less than a month after his COVID-19 diagnosis—he will suffer flash pulmonary edema within one or two seconds of injection but before the pentobarbital reaches the brain and renders him unconscious. Though the Eighth Amendment does not guarantee a painless death, it does prohibit needless suffering. *See Baze*, 553 U.S. at 49–50. The pulmonary edema that Higgs will endure while he is still conscious would not occur were his execution to be delayed. A *brief* injunction will allow Higgs' lungs to sufficiently recover so that he may be executed in a humane manner. Thus, Higgs has successfully demonstrated a substantial risk of serious harm.[9]

ii. COVID-19 Lung Damage – Johnson

Despite the lack of x-ray evidence in Johnson's case, the court reaches the same conclusion for Johnson for several reasons. The assessment of the live testimony above applies

[8] Dr. Yoon's interpretation of Higgs' 2020 x-ray is included in Higgs' BOP medical record. (*See* Smiledge Decl. at 107.)

[9] Higgs also alleges that his COVID-19 diagnosis, given his severe asthma, makes it more likely that he will experience flash pulmonary edema while still conscious. Higgs does not allege that his asthma alone will cause him to suffer these effects. Having already found that Higgs' COVID-19 symptoms will cause him to suffer from flash pulmonary edema while sensate, the court need not determine whether and to what effect asthma has damaged his lungs.

with equal force to Johnson's COVID-19 as-applied claim. It is undisputed that Johnson is suffering from symptoms of COVID-19, which, as Drs. Van Norman and Stephen have shown, means he has suffered damage to his alveoli-capillary membrane. Were he to be injected with pentobarbital in his current state, the drug would travel first to his heart and then to his lungs. As the drug courses through his lungs, it will burn the alveoli-capillary membrane which has already been damaged from COVID-19, triggering flash pulmonary edema, all before the pentobarbital even reaches his brain and begins to have an anesthetizing effect.

And though Johnson's lungs have not been x-rayed (despite a request by Plaintiffs, *see* ECF No. 386), the court can infer from the expert testimony that Johnson has suffered COVID-19 related lung damage. Here again, Dr. Antognini's declaration failed to adequately account for the biological sequence of events that occurs after injection, particularly given COVID-19 symptoms. And Dr. Locher's failure to account for obvious changes in Higgs' x-ray undermines his opinion that patients with mild COVID-19 symptoms are unlikely to suffer extensive lung damage.

The record contains several pulse oximetry readings taken from Johnson over the course of his illness, the interpretation of which was also debated amongst the experts. But the court found this evidence less helpful. As Dr. Van Norman explained in a supplemental declaration she prepared for Johnson, "[a] clear change from 99% to 97%, as Mr. Johnson's pulse oximetry results show, is clinically significant and indicates significant changes have occurred in gas exchange in the lungs, particularly in the setting of early COVID-19 infection." (ECF No. 374-3, Van Norman Decl. Re Johnson ¶ 11.) She explained that "pulse oximetry is both a late and relatively crude method of examining impairments in oxygen exchange in the lungs." (*Id.* ¶ 9.)

Thus, "a person's oxygen level can fall by 80% and still show 100% SaO_2 [(the reading captured by a pulse oximetry test)]." (*Id.* ¶ 10.)

Dr. Antognini disputed this characterization. In his view, "[i]t is misleading to state that going from 99% to 97% is a trend," a change which is "clinically insignificant" because Johnson's pulse oximetry readings have been in the normal range. (Antognini 5th Supp. Decl. ¶ 7.) Dr. Antognini also explained that "[p]ulse oximetry readings are subject to variation and depend considerably on the placement of the probe, the amount of circulation to the finger, motion artifact, etc." (*Id.*)

Dr. Van Norman did not address this critique and did not appear to account for the fact that pulse oximetry readings are subject to variation or that, despite a drop in his pulse oximetry readings, Johnson's oxygen saturation level have remained in the normal range. In fact, even if the court accepts Dr. Van Norman's assertion that a decrease in pulse oximetry *could* signal a steep deprivation of oxygen, it is unclear whether that has occurred in Johnson's case and to what extent. (*See* Van Norman Decl. Re Johnson ¶ 9.) In any event, Dr. Van Norman confirmed that *"[e]ven if [Johnson's] pulse oximetry readings had not decreased* at this point in his infection, the studies I previously cited indicate that he is experiencing ongoing damage to the alveolar capillary membrane that will persist for a prolonged period of time after symptoms resolve." (*Id.* ¶ 12.) The court further notes that Johnson received a 98% reading in a pulse oximetry test performed on January 2, 2021. (*See* ECF No. 387-1 at 3.) Because the interpretation of these results is unclear, the court will accord them minimal weight.

Nevertheless, given the testimony proffered for Higgs and the relative weight the court has afforded the experts, Johnson has demonstrated a substantial risk of serious harm.

iii. Heart Issues – Higgs

Higgs' claim based on his heart conditions was less compelling and, standing alone, would not be enough to show a likelihood of success on an as-applied challenge. Ultimately, Higgs has not convincingly shown that his heart conditions make him more likely to suffer the effects of flash pulmonary edema before he is rendered insensate.

Higgs suffers from various heart conditions, including structural heart disease (by virtue of left atrial enlargement) and mitral valve disease (with moderate mitral valve regurgitation and anterior leaflet dysfunction). (Stephen Decl. ¶ 12.) Dr. Stephen explained that Higgs' enlarged left atrium ineffectively pumps blood to the left ventricle, putting Higgs at risk for fluid backup in his lungs (pulmonary edema). (*Id.* ¶ 13.) An injection of pentobarbital, a cardiac depressant, will induce a sudden onset of congestive heart failure and flash pulmonary edema. (*Id.* ¶ 14.) Dr. Joel Zivot offered similar opinions in his declaration. (*See generally* ECF No. 374-6 ¶¶ 7–9, 19.)

Again, Dr. Locher's declaration was of little value to the court. Dr. Locher confirmed that studies show that "COVID-19 can affect cardiac structure and function which may lead to pulmonary edema." (Locher Decl. ¶ 8.) He qualified his statement by noting that such studies were only performed on symptomatic and hospitalized patients, although he also acknowledges that Higgs is symptomatic. Dr. Locher's other opinions on the issue exhibited the same inconsistencies as his assessment of COVID-19 related lung damage. For instance, Dr. Locher stated that "there is no way for anyone to know if Mr. Higgs has any cardiac decompensation without performing a physical exam, laboratory studies such as serum troponin level . . .[or] a current EKG and echocardiogram." (*Id.* ¶ 8). He then went on to say that such an evaluation would not be helpful for a patient with minimal or no symptoms. (*Id.*) Dr. Locher also

contended that there is no evidence in the medical literature to suggest mitral regurgitation would lead to earlier or more severe pulmonary edema after an injection of five grams of pentobarbital. (*Id.* ¶ 8). The court does not find this argument persuasive—it is not surprising that there is a lack of evidence in the medical literature, given that individuals with mitral regurgitation (or any individuals) are not routinely injected with a lethal dose of pentobarbital.

Dr. Crowns' declaration was more persuasive.[10] He opined that Higgs' mitral valve prolapse/regurgitation is a common condition that presents no symptoms in most people. (ECF No. 380-5, Crowns Decl. ¶ 4.) He further stated that Higgs has not shown signs that he is progressing to heart failure. (*Id.* ¶ 5.) A May 2019 echocardiogram revealed a preserved left ventricular ejection fraction well within a "normal" range. (*Id.*) And during a cardiac consultation in November 2020, Higgs denied any chest pain, palpitations or shortness of breath, and confirmed that he can participate in vigorous exercise. (*Id.*) Thus, Crowns opined that Higgs is not suffering from heart failure and his heart condition would not cause him to experience flash pulmonary edema while sensate. (*Id.* ¶ 6.)[11]

The court has no meaningful way of resolving this dispute. Unlike the expert testimony regarding his lung damage, Higgs' cardiac history indicates that he has a heart abnormality that has not materially impacted his overall health. And despite the abnormality, Higgs' cardiac

[10] Plaintiffs point out that in an earlier evidentiary hearing, Dr. Crowns described "a case report of an individual who developed flash pulmonary edema [upon administration of pentobarbital], but he had underlying heart issues, specifically mitral valve issues . . . So, in his situation, his flash pulmonary edema was the result of a compromised heart." (Higgs Mot. at 9 (quoting ECF No. 271 at 18).) Dr. Crowns asserted that this statement was taken out of context, noting that the study to which he was referring included one patient who had clear symptoms of heart failure. (Crowns Decl. ¶¶ 3–4.)

[11] Though Plaintiffs established that Crowns is not an expert in anesthesiology, the court finds his assessment of Higgs' cardiac health credible.

measurements fall within a normal range. Higgs' experts opine that his heart conditions weaken his heart and are therefore highly likely to cause him to suffer flash pulmonary edema while sensate. But given credible expert testimony on both sides, and absent abnormal measurements showing deteriorating cardiac health, the court cannot find that Higgs has a *substantial* risk of suffering flash pulmonary edema during his execution because of his heart condition.

Higgs also theorizes that his COVID-19 diagnosis will further aggravate his heart condition. However, there is no evidence showing that Higgs has suffered cardiac damage as a result of his COVID-19 diagnosis. Indeed, none of the experts raised any flags about Higgs' cardiac measurements. And while the court accepts the scientific conclusion—proffered by both sides—"that COVID-19 can affect cardiac structure and function which may lead to pulmonary edema" (Locher Decl. ¶ 8), Higgs' own expert testified that COVID-19 impacts patients in different ways, (*see* Stephen Decl. ¶ 11). Based on the evidence before it, the court cannot conclude that Higgs will succeed on this as-applied challenge.

2. Known and Available Alternatives

i. Pre-dose of opioid pain or anti-anxiety medication

Plaintiffs proffer evidence that a pre-dose of certain opioid pain medications, such as morphine or fentanyl, will significantly reduce the risk of severe pain during the execution. (Higgs Mot. at 11–12 (quoting ECF No. 25, Decl. of Craig Stevens, ¶¶ 15–16).) Defendants argue that no state currently uses analgesics in its execution procedures, that pentobarbital alone is sufficiently painless, and that BOP has concluded that a one-drug protocol is preferable, because it will reduce "the risk of errors during administration" and "avoid the complications inherent in obtaining multiple lethal injection drugs and in navigating the expiration dates of multiple drugs." (Defs. Opp'n at 29–30 (citation omitted).)

The court finds Defendants' positions unavailing. While they contend that "no State adds an opioid to an execution protocol using pentobarbital," and the government is therefore not required to do so, (*Id.* at 30 (citing *Bucklew*, 139 S. Ct. at 1130)), this argument misses the mark. As this court has previously noted, Nebraska recently used a pre-dose of fentanyl to reduce the risk of serious pain during an execution (ECF No. 135 at 15), whereas in *Bucklew*, the plaintiff presented only "reports from correctional authorities in other States indicating that additional study [was] needed to develop a protocol" for the proposed execution mechanism. *Bucklew*, 139 S. Ct. at 1129. Even if Defendants were correct, however, the fact that other states do not use pain medication would not be dispositive. *See Bucklew*, 139 S. Ct. at 1136 (Kavanaugh, J., concurring) ("I write to underscore the Court's additional holding that the alternative method of execution need not be authorized under current state law. . . . Importantly, all nine Justices today agree on that point.").

Finally, Defendants contend that BOP has "legitimate reasons" for choosing not to use a pre-dose of an opioid because it has concluded that a one-drug protocol will reduce "the risk of errors during administration" and "avoid the complications inherent in obtaining multiple lethal injection drugs and in navigating the expiration dates of multiple drugs." (Defs. Opp'n at 30 (citations to Admin. R. omitted).) The court does not question BOP's conclusions regarding the administrative efficiency of a one-drug protocol. It does, however, question Defendants' conclusion that the administrative ease of administering and procuring a single drug over two drugs—apparently without having made a good faith attempt at the latter, *cf. Glossip*, 576 U.S. at 878–79—is a "legitimate penological reason" to select a particular method of execution despite evidence that the risk of pain associated with that method is "substantial when compared to a known and available alternative." *Bucklew*, 139 S. Ct. at 1125 (quoting *Glossip*, 576 U.S. at

878); *see also Henness v. DeWine*, 141 S. Ct. 7, 9 (2020) (Sotomayor, J., statement on denial of certiorari).

The Supreme Court has previously found a "legitimate penological reason" where a particular drug "hasten[ed] death," *Baze*, 553 U.S. at 57–58 (plurality op.); where a state chose "not to be the first to experiment with a new method of execution" that had "no track record of successful use," *Bucklew*, 139 S. Ct. at 1130 (citation omitted); and where a state was unable to procure particular drugs "despite a good-faith effort to do so," *Glossip*, 576 U.S. at 868–79 (detailing state's efforts and implying without stating that this reason was "legitimate"). Defendants have presented no evidence that they have tried to either procure or administer the two-drug protocol proffered by Plaintiffs, or that any such efforts were unsuccessful. *Cf.* Admin. R. at 869 (asserting that manufacturers would "most likely" resist efforts to use fentanyl in executions); *Execution Protocol Cases*, 980 F.3d at 133 ("The combination of drugs as part of lethal injection protocols has been used by both states and the federal government, and is still used in a number of jurisdictions. The two-drug protocol also fits squarely within the plain text of the federal execution protocol." (citations omitted)). Nor have Defendants provided this court with any authority to support their contention that administrative concerns are a sufficient "legitimate penological reason" under the Supreme Court's Eighth Amendment jurisprudence.

In sum, Plaintiffs have proposed a simple addition to the execution procedure that is likely to be as effective as it is easily and quickly administered. *See Bucklew*, 139 S. Ct. at 1129.

ii. Firing squad.

Alternatively, Plaintiffs proffer execution by firing squad. (Higgs Mot. at 12–13; ECF No. 92 ¶ 114(c).) Because that method of execution is feasible, readily implemented, and would significantly reduce the risk of severe pain, it satisfies the *Blaze-Glossip* requirements for

proposed alternatives. Execution by firing squad is currently legal in three states, Utah, Oklahoma, and Mississippi, and can hardly be described as "untried" or "untested" given its historical use as a "traditionally accepted method of execution." *Bucklew*, 139 S. Ct. at 1125, 1130. Moreover, the last execution by firing squad in the United States occurred just over a decade ago, on June 18, 2010, in Utah.

Both the historical use of firing squads in executions and more recent evidence suggest that, in comparison to the 2019 Protocol, execution by firing squad would significantly reduce the risk of severe pain. *See, e.g.*, Deborah Denno, *Is Electrocution an Unconstitutional Method of Execution? The Engineering of Death Over the Century*, 35 Wm. & Mary L. Rev. 551, 688 (1994) ("A competently performed shooting may cause nearly instant death"); Austin Sarat, *Gruesome Spectacles: Botched Executions and America's Death Penalty* app. A at 177 (2014) (calculating that while 7.12% of the 1,054 executions by lethal injection between 1900 and 2010 were "botched," none of the 34 executions by firing squad had been, the lowest rate of any method).[12]

Defendants point to two cases from other Circuits in which courts appeared skeptical of these conclusions. (Defs. Opp'n at 30–31.) But again, they overlook the Supreme Court's

[12] Defendants contend that Sarat "does not discuss execution by firing squad" and that "there is insufficient data in the cited appendix to draw any statistically significant conclusions," given that there "were only two executions by firing squad" since 1980. Setting aside the inconsistency of Defendants' arguments—first claiming that Sarat does not discuss firing squads, and then critiquing the data Sarat provides on that precise subject—Defendants simply misrepresent the facts. Although Sarat's work does not contain a specific chapter devoted to execution by firing squad, it does contain specific mentions of firing squads throughout the main text and associated footnotes, *see* Sarat, *supra* at 4, 10–11, 167, 219 n.131, and the referenced appendix provides data on all executions performed in the United States from 1900 through 2010, including the rate of botched executions separated by execution method. *Id.* app. A at 177. While only two executions by firing squad have been performed since 1980, Defendants inexplicably choose to ignore the first statistics provided in the Appendix, which note that there were 34 executions by firing squad between 1900 and 2010, none of which were botched. *Id.*

guidance in *Bucklew* that a plaintiff's burden in identifying an alternative method of execution "can be overstated" and that there is "little likelihood that an inmate facing a serious risk of pain will be unable to identify an available alternative." 139 S. Ct. at 1128–29. Indeed, members of the Court, including at least one Justice in the *Bucklew* majority, have opined that the firing squad may be an immediate and sufficiently painless method of execution. *See, e.g.*, *id.* at 1136 (Kavanaugh, J., concurring); *Arthur v. Dunn*, 137 S. Ct. 725, 733–34 (2017) (Sotomayor, J., dissenting from denial of cert.) ("In addition to being near instant, death by shooting may also be comparatively painless."). Moreover, given that use of the firing squad is "well established in military practice," *Baze*, 553 U.S. at 102 (Thomas, J., concurring in the judgment), Defendants are, if anything, more capable than state governments of finding "trained marksmen who are willing to participate," and who possess the skill necessary to ensure death is near-instant and comparatively painless. *Cf. McGehee v. Hutchinson*, 854 F.3d 488, 494 (8th Cir. 2017).

Defendants also argue that the court should defer to the government's "legitimate reason[]" for choosing not to adopt the firing squad as a method of execution—that legitimate reason being the government's interest in "preserving the dignity of the procedure" in light of what they deem the "'consensus' among the States that lethal injection is more dignified and humane." (Defs. Opp'n at 32–33 (quoting *Baze*, 553 U.S. at 57, 62 (plurality op.).) Yet in *Baze,* the plurality opinion, joined by three Justices, found that the "consensus" to which Defendants refer went "not just to the method of execution, but also to the specific three-drug combination" at issue in that case. *Baze*, 553 U.S. at 53. The same plurality also found that the state's decision to administer a paralytic agent as part of its execution protocol did not offend the Eighth Amendment where the state's interest in "preserving the dignity of the procedure" by preventing convulsions that "could be misperceived as signs of consciousness or distress" was coupled with

the "the States' legitimate interest in providing for a quick, certain death," and the paralytic had the effect of "hastening death." *Id.* at 57–58.

In his opinion concurring in the judgment in *Baze*, Justice Stevens noted that concern with the "dignity of the procedure" alone constituted a "woefully inadequate justification." "Whatever minimal interest there may be in ensuring that a condemned inmate dies a dignified death, and that witnesses to the execution are not made uncomfortable . . . is vastly outweighed by the risk that the inmate is actually experiencing excruciating pain." *Id.* at 73 (Stevens, J., concurring in the judgment); *cf. Bucklew*, 139 S. Ct. at 1130 (finding that "choosing not to be the first to experiment with a new method of execution" that had "no track record of successful use" constituted a "legitimate reason." (citation omitted)). Defendants' argument that the *perception* of a method of execution as less dignified or "more primitive" is a "legitimate penological reason" for declining to adopt a different protocol thus misconstrues the standard set by the Supreme Court's precedent on this issue.

The court does not find that execution by firing squad would be an acceptable alternative in every case. In this case, however, Defendants could readily adopt Plaintiffs' proposal.

Finally, Defendants argue that Plaintiffs' stated preference for execution by firing squad is disingenuous. But Plaintiffs have argued for it at length throughout this litigation, (*see, e.g.*, ECF No. 92), and have shown that it is readily implemented, available, and would significantly reduce the risk of severe pain. *Cf. Bucklew*, 139 S. Ct. at 1136 (Kavanaugh, J., concurring) (rejecting possibility of execution by firing squad where the plaintiff had chosen not to plead it as an alternative).

iii. Postponement

Plaintiffs have alternatively proffered the option of delaying their execution until they have recovered from COVID-19. (Higgs Mot. at 13–14.) This is not, as precedent requires, "a known and available alternative method of execution," *see Glossip*, 576 U.S. at 864, but rather an alternative *date* of execution. Even so, the court is likewise unpersuaded by Defendants' contention that postponing the executions "directly contradicts [Plaintiffs'] general Eighth Amendment claim and belies every argument they have made in support of that claim over the last 15 months." (Defs. Opp'n at 34.) If lethal injection of pentobarbital will create a significant risk of suffering even in otherwise healthy persons, as Plaintiffs have long attested, then the risk to an individual with severe respiratory illness, such COVID-19, would only be heightened. This proposal therefore does not contradict Plaintiff's other arguments.

Plaintiffs have identified two available and readily implementable alternative methods of execution that would significantly reduce the risk of serious pain: a pre-dose of opioid pain or anti-anxiety medication, or execution by firing squad. Thus, they have established a likelihood of success on the merits of their claims that the 2019 Protocol's method of execution constitutes cruel and unusual punishment in violation of the Eighth Amendment.

B. Irreparable Harm

In order to prevail on a request for preliminary injunction, irreparable harm "must be certain and great, actual and not theoretical, and so imminent that there is a clear and present need for equitable relief to prevent irreparable harm," and it "must be beyond remediation." *League of Women Voters of U.S. v. Newby,* 838 F.3d 1, 7–8 (D.C. Cir. 2016) (citing *Chaplaincy of Full Gospel Churches v. England*, 454 F.3d 290, 297 (D.C. Cir. 2006)) (internal quotation marks and brackets omitted). Here, without injunctive relief, Plaintiffs would be subjected to an

excruciating death in a manner that is likely unconstitutional. This harm is manifestly irreparable. *See Karem v. Trump*, 960 F.3d 656, 667 (D.C. Cir. 2020) (explaining that "prospective violation[s] of . . . constitutional right[s] constitute[] irreparable injury for [equitable-relief] purposes" (internal quotation marks omitted)).

Other courts in this Circuit have found irreparable harm in similar, but less dire circumstances. *See, e.g.*, *Damus v. Nielsen*, 313 F. Supp. 3d 317, 342 (D.D.C. 2018) (finding irreparable injury where plaintiffs faced detention under challenged regulations); *Stellar IT Sols., Inc. v. USCIS*, No. 18-2015, 2018553 U.S. at 49 WL 6047413, at *11 (D.D.C. Nov. 19, 2018) (finding irreparable injury where plaintiff would be forced to leave the country under challenged regulations); *FBME Bank Ltd. v. Lew*, 125 F. Supp. 3d 109, 126–27 (D.D.C. 2015) (finding irreparable injury where challenged regulations would threaten company's existence); *N. Mariana Islands v. United States*, 686 F. Supp. 2d 7, 19 (D.D.C. 2009) (finding irreparable injury where challenged regulations would limit guest workers).

Defendants argue that Plaintiffs have failed to demonstrate irreparable harm given "the absence of any evidence that [Plaintiffs], as a result of contracting COVID-19, will experience pulmonary edema prior to falling insensate." (Defs. Opp'n at 36.) But, for the reasons discussed above, the court has found otherwise. Furthermore, Defendants appear to imply that if Plaintiffs experience flash pulmonary edema for thirty seconds, at most, that would not constitute irreparable harm. (*See id.* at 35–36.) The court has already addressed this argument. *See* supra n.1. The Eighth Amendment does not permit "substantial" and "needless" suffering so long as it will only be experienced for a short time. *See Baze*, 553 U.S. at 49–50. Here, the risk of substantial suffering can be avoided by using one of Plaintiffs' proffered alternatives or by waiting several weeks to allow Plaintiffs to recover from a novel disease before executing them.

Thus, Plaintiffs have sufficiently shown they will suffer irreparable harm if their executions proceed as planned.

C. Balance of Equities

The need for closure in this case—particularly for the victims' families—is significant. *See Calderon v. Thompson*, 523 U.S. 538, 556 (1998) ("Only with an assurance of real finality can the [government] execute its moral judgment in a case . . . [and] the victims of crime move forward knowing the moral judgment will be carried out."). And this court is mindful of the Supreme Court's caution against last minute stays of execution. *See Bucklew*, 139 S. Ct. at 1134. But the government's ability to enact moral judgment is a great responsibility and, in the case of a death sentence, cannot be reversed. After suspending federal executions for over seventeen years, the government announced a new Execution Protocol and a resumption of executions in July 2019, and since July of this year has executed eleven inmates. Any potential harm to the government caused by a brief stay is not substantial. Indeed, the government has not shown that it would be significantly burdened by staying these two executions for several more weeks until Plaintiffs have recovered from COVID-19. Accordingly, the court sees no reason why this execution *must* proceed this week. Thus, the balance of the equities favors a stay.

D. Public Interest

The court is deeply concerned that the government intends to execute two prisoners who are suffering from COVID-19 infection, particularly given that the disease impacts individuals in drastically different ways and can have particularly devastating long-term effects, even for those with mild symptoms. This is to say nothing of the fact that executing inmates who are positive for COVID-19 in a facility with an active COVID-19 outbreak will endanger the lives of those performing the executions and those witnessing it. This is irresponsible at best, particularly

when a temporary injunction will reduce these risks. The public interest is not served by executing individuals in this manner. *See Harris v. Johnson*, 323 F. Supp. 2d 797, 810 (S.D. Tex. 2004) ("Confidence in the humane application of the governing laws . . . must be in the public's interest.").

Thus, the court finds that all four factors weigh in favor of injunctive relief, and once again finds itself in the unenviable position of having to issue yet another last-minute stay of execution. Nonetheless, this is the nature of death penalty litigation, and this court has had a disproportionate number of such claims given the nature of the case. Moreover, this result could not have been avoided given that Plaintiffs were diagnosed with COVID-19 in late December, at which point Plaintiffs filed amended complaints. The court held an evidentiary hearing to assess the likelihood of success on the merits of these claims and scheduled that hearing at the earliest possible date.

III. CONCLUSION

The court finds that Plaintiffs have demonstrated a likelihood of success on the merits and that absent a preliminary injunction, Plaintiffs will suffer irreparable harm. It further finds that the likely harm that Plaintiffs would suffer if the court does not grant injunctive relief far outweighs any potential harm to Defendants. Finally, because the public is greatly served by attempting to ensure that the most serious punishment is imposed in a manner consistent with our Constitution, the court finds that it is in the public interest to issue a preliminary injunction.

Accordingly, for the reasons set forth above, the court will GRANT Plaintiffs' motions for a preliminary injunction. The injunction will remain in effect until March 16, 2021.[13] A corresponding order will be issued simultaneously.

Date: January 12, 2021

Tanya S. Chutkan
TANYA S. CHUTKAN
United States District Judge

[13] The court calculated this date based on Dr. Van Norman's assessment that COVID-19-related lung damage can persist for as long as ninety days after infection. (*See* Van Norman Decl. at 6.) Both Plaintiffs tested positive for COVID-19 on December 16, 2020. The court will not enjoin these executions indefinitely, however. Accordingly, it will consider extending the injunction only if Plaintiffs can provide *demonstrated* evidence of continued lung damage from COVID-19. And the court expects that Defendants will, in good faith, comply with reasonable requests for follow-up medical assessment which, at the bare minimum, should include an x-ray for each Plaintiff in several weeks.

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases,	)	
LEAD CASE: *Roane, et al. v. Barr*	)	Case No. 19-mc-145 (TSC)
THIS DOCUMENT RELATES TO:	)	
Roane v. Barr, 05-cv-2337	)	

ORDER

For the reasons set forth in the accompanying Memorandum Opinion, (ECF No. 394), the motions for a preliminary injunction filed by Plaintiffs Dustin Higgs and Cory Johnson, (ECF Nos. 371, 375), are hereby GRANTED. The court finds that Plaintiffs have demonstrated a likelihood of success on the merits and that, absent a preliminary injunction, Plaintiffs will suffer irreparable harm. It further finds that the likely harm that Plaintiffs would suffer if the court does not grant injunctive relief far outweighs any potential harm to Defendants. Finally, because the public is greatly served by attempting to ensure that the most serious punishment is imposed in a manner consistent with our Constitution, the court finds that it is in the public interest to issue a preliminary injunction.

It is hereby ORDERED that Defendants (along with their respective successors in office, officers, agents, servants, employees, attorneys, and anyone acting in concert with them) are enjoined from executing Plaintiffs Dustin Higgs and Cory Johnson until March 16, 2021.

Date: January 12, 2021

Tanya S. Chutkan
TANYA S. CHUTKAN
United States District Judge

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 21-5004 **September Term, 2020**

1:19-mc-00145-TSC

Filed On: January 13, 2021

In re: In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases,

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James H. Roane, Jr., et al.,

Appellees

v.

Jeffrey Rosen, Acting Attorney General, et al.,

Appellants

BEFORE: Pillard**, Katsas*, and Walker*, Circuit Judges

O R D E R

Upon consideration of the emergency motion to stay or to immediately vacate an injunction, the opposition thereto, and the reply, it is

ORDERED that the motion be granted and that the preliminary injunction entered by the district court on January 12, 2021, be vacated. See Barr v. Lee, 140 S. Ct. 2590, 2591–92 (2020). It is

FURTHER ORDERED, on the court's own motion, than any petition for rehearing or rehearing en banc be filed no later than 9:00 a.m. on January 14, 2021.

Pursuant to D.C. Circuit Rule 36, this disposition will not be published. The Clerk is directed to withhold issuance of the mandate until disposition of any timely petition for

* A statement by Circuit Judge Katsas, joined by Circuit Judge Walker, concurring in this order, is attached.

** A statement by Circuit Judge Pillard, dissenting from this order, is attached.

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 21-5004 **September Term, 2020**

rehearing or rehearing en banc. If no rehearing petition is filed by 9:00 a.m. on January 14, 2021, the Clerk is directed to issue the mandate forthwith. See Fed. R. App. P. 41(b); D.C. Cir. Rule 41.

Per Curiam

FOR THE COURT:
Mark J. Langer, Clerk

BY: /s/
Scott H. Atchue
Deputy Clerk

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 21-5004 **September Term, 2020**

Katsas, *Circuit Judge*, joined by Walker, *Circuit Judge*, concurring:

Cory Johnson and Dustin Higgs are scheduled to be executed by lethal injection of pentobarbital sodium. They contend that this method of execution violates the Eighth Amendment as applied to their specific medical circumstances. Johnson and Higgs recently tested positive for COVID-19. They argue that the virus has damaged their lungs to the point that the drug will cause them to experience flash pulmonary edema—"a form of respiratory distress that temporarily produces the sensation of drowning or asphyxiation," *Barr v. Lee*, 140 S. Ct. 2590, 2591 (2020)—before it renders them insensate. The district court agreed and so preliminarily enjoined the impending executions. The government has filed an emergency motion to stay or vacate the preliminary injunction. I write to explain my vote to grant the motion and vacate the injunction.

A prisoner claiming that a specific method of execution violates the Eighth Amendment "faces an exceedingly high bar." *Lee*, 140 S. Ct. at 2591. The Eighth Amendment "does not guarantee a prisoner a painless death—something that, of course, isn't guaranteed to many people." *Bucklew v. Precythe*, 139 S. Ct. 1112, 1124 (2019). Instead, it prohibits only methods of execution that "intensif[y] the sentence of death with a (cruel) superaddition of terror, pain, or disgrace." *Id.* (cleaned up). To establish an Eighth Amendment violation, the prisoner must show that the disputed method presents "a substantial risk of severe pain," meaning that it is "*sure or very likely* to cause … needless suffering." *Glossip v. Gross*, 576 U.S. 863, 877 (2015) (cleaned up). The prisoner also must establish that a feasible alternative execution method would significantly decrease that suffering. *Bucklew*, 139 S. Ct. at 1125 (citing *Glossip*, 576 U.S. at 868–69). The Constitution affords a "measure of deference" to government choices in this area, and the Court has "yet to hold that a State's method of execution qualifies as cruel and unusual." *Id.* at 1124–25 (cleaned up).

In addition, to obtain a post-habeas stay of execution, the prisoner must show more than "competing expert testimony" on the question whether the government's chosen method is very likely to cause needless suffering. *Lee*, 140 S. Ct. at 2591 (2020); *see also Execution Protocol Cases*, 980 F.3d 123, 135 (D.C. Cir. 2020). This is partly because federal courts are not well suited to resolve "ongoing scientific controversies beyond their expertise." *Glossip*, 576 U.S. at 882 (quoting *Baze v. Rees*, 553 U.S. 35, 51 (2008) (plurality)). Moreover, "[l]ast-minute stays," issued years after the crime and days before the execution, "should be the extreme exception, not the norm." *Lee*, 140 S. Ct. at 2592 (quoting *Bucklew*, 139 S. Ct. at 1134) (cleaned up).

Applying these standards, the Supreme Court in *Lee* allowed several executions to proceed through lethal injections of pentobarbital. The Court noted that pentobarbital is used for executions by five States, has been "used to carry out over 100 executions, without incident," and is "repeatedly invoked by prisoners as a less painful and risky alternative to the lethal injection protocols of other jurisdictions." *Lee*, 140 S. Ct. at 2591 (cleaned up). In preliminarily enjoining the *Lee* execution, the district court had found that "scientific evidence overwhelmingly indicate[d]" a lethal injection of pentobarbital is "very likely" to cause "extreme pain and needless suffering" from flash pulmonary edema before the prisoner has been rendered insensate. *Execution Protocol Cases*, 471 F. Supp. 3d 209, 218 (D.D.C. 2020); *see also id.* at 219 (finding that the plaintiffs "ha[d] the better of the scientific evidence"). Yet because the government presented "competing expert testimony" on that question, the Court held that the plaintiffs had not "made the showing required to justify last-minute intervention." *Lee*, 140 S. Ct. at 2591–92. The Supreme Court therefore vacated the preliminary injunction, which we had declined to disturb. *See id.*

In this case, the district court sought to distinguish *Lee* on the ground that Higgs and Johnson's COVID-19 symptoms will exacerbate the effect of pentobarbital on their lungs. Specifically, it found that Higgs and Johnson will experience a flash pulmonary edema within "one or two seconds" of the injection, before becoming insensate. *Execution Protocol Cases*, No. 19-mc-145 (TSC), ECF 394, at 3. But the same legal standards govern facial and as-applied challenges to the use of pentobarbital for executions. *See Bucklew*, 139 S. Ct. at 1126–28. And the district court based its finding on the same kind of evidence that the Supreme Court had found insufficient in *Lee*: competing expert testimony on close questions of scientific fact.

The district court's reasoning reflects three subsidiary factual determinations: first, that COVID-19 has severely damaged the plaintiffs' lungs; second, that this damage would make them experience a flash pulmonary edema sooner; and third, that they will experience this before they become insensate. The record reflects genuinely disputed testimony on each of those points.

To begin, it is unclear whether Higgs has suffered significant lung damage from COVID-19. Shauna Smiledge, a health service administrator at the prison where Higgs is incarcerated, summarized his medical records. Smiledge Decl., ECF 380-4. According to the records, Higgs was "seen by five different providers" between December 23 and December 29, "all of whom assessed [his] pulmonary status." *Id.* at 4. During that period, his oxygen saturation level consistently measured between 99% and 100%. *Id.* at 3–4. Higgs once said that his breathing "felt funny," but "did not report any other problems." *Id.*

On December 30, Higgs told his provider that he was "short of breath sometimes" but with the caveat, "Nothin's new. I'm fine." *Id.* at 4. Following an x-ray, Justin Yoon, the reviewing radiologist, read the scans to show only one abnormality: a "right apical reticular nodular density" that was "unchanged" since Higgs' last chest x-ray from two years ago. Locher Decl., ECF 380-1, at 4. Two government experts agreed with Yoon's assessment: pulmonologist Todd Locher, *id.*; H'rg Tr. at 59–60, and forensic pathologist Kendall Von Crowns, H'rg Tr. at 22. Locher thus concluded that Higgs' medical records reflect only "minimal symptoms" from COVID-19. Locher Decl., ECF 380-1, at 3.

Higgs contests that assessment. First, he has argued that his medical records understate his symptoms and reflect inadequate care. The district court declined to credit that argument, and for good reason: Higgs' medical records were updated daily; Smiledge saw no evidence that the records were inadequate, Smiledge Decl., ECF 380-4, at 3; and Higgs' own investigator reported that he "is asked three times a day how he is feeling," Johnson Decl., ECF 383-1, at 2. Second, through an expert, Higgs contests the government's interpretation of his x-rays. Michael Stephen, an intensive-care physician, testified that the x-rays show "significantly increased interstitial markings" on Higgs' lungs, which indicate "very acute COVID pneumonia." H'rg Tr. at 94, 96. The district court credited Stephen's testimony, based principally on its own independent interpretation of the x-rays. *See Execution Protocol Cases*, ECF 394, at 15 ("the right lung in the 2020 image has more prevalent cloudier streaks when compared to the same lung in 2018"). But that testimony, measured against the conflicting views of the two government experts and the attending radiologist, establishes at most "competing expert testimony" over whether Higgs has sustained appreciable lung damage. *See Lee*, 140 S. Ct. at 2591–92.

The same is true for Johnson. According to his medical records, Johnson reported a headache and dry cough on December 20. Locher Decl., ECF 380-1, at 4. On the six days following December 21, he reported an intermittent headache but no cough, at one point noting that his breathing had improved. *Id.* Between December 27–29, Johnson reported a "little cough," but on December 30 he told prison health officials, "I'm okay, I'm good." Smiledge Decl., ECF 380-4, at 5. Johnson recently submitted a declaration asserting that his cough had worsened since January 2, Johnson Decl., ECF 383-3, at 3–4, but updated medical records show that it was "improving" as of January 3, ECF 386-2 at 6.

The parties draw competing inferences from Johnson's mild symptoms. Plaintiffs' expert Gail Van Norman, an anesthesiologist, testified that Johnson had suffered "significant lung damage" that would persist for at least 90 days. Van Norman Decl., ECF

374-3, at 4–5.[1] She cited studies that COVID-19 patients with mild or no symptoms experience lung damage in anywhere between 56–94% of cases. Van Norman Decl., ECF 374-1, at 4. Locher responded that the literature varied on the extent to which individuals with mild cases of COVID-19 develop temporary lung damage, but one recent study found damage in as low as 44.5% of patients. Locher Decl., ECF 380-1, at 3. In any event, Locher testified that given Johnson's mild symptoms, any damage to his lungs would be minor. *Id.* at 4.

The record also contains substantial conflicting testimony on whether asymptomatic or mildly symptomatic COVID-19 patients would be more likely to experience flash pulmonary edema. Van Norman testified that a person with "COVID-related lung damage" would experience pulmonary edema "even earlier in the execution process" than would a person without it. Van Norman Decl., ECF No. 374-1, at 1. She reasoned that COVID-19 damages the lungs' "alveolar-capillary membrane, which is also the site of damage of massive barbiturate overdose," and that this damage would render COVID-positive patients particularly "susceptible to rapid and massive barbiturate damage." *Id.* at 2, 4. But her declaration cites no evidence for that second inference. Moreover, Joseph Antognini, who testified for the government and upon whom the Supreme Court relied in *Bucklew*, *see* 139 S. Ct. at 1131–32, described Van Norman's assertion as "entirely speculative," Antognini Decl., ECF 380-2, at 1, and based on "no published evidence," *id.* at 2. The district court credited Van Norman's testimony on these points because she has treated patients with COVID-19. Execution Protocol Cases, ECF 394, at 12. But that provides little basis for an opinion on the specific question of the relationship between pentobarbital and pulmonary edema. The district court further reasoned that, although Van Norman did not "provid[e] support for her conclusions," Antognini's opinions were "conclusory" as well. *Id.* at 12. But if both sides' evidence on this point was shaky, *Lee* requires denying a stay.

Finally, the record contains only conjecture on whether a lethal injection of pentobarbital would cause any edema before rendering the prisoner insensate. Antognini opined in his written declaration that Higgs and Johnson "are not at increased risk of developing pulmonary edema from pentobarbital prior to the onset of unconsciousness." Antognini Decl., 380-2, at 4. In contrast, Van Norman stated in her oral testimony, but not

[1] Van Norman also based her assessment on what she described as a "clinically significant" drop recorded in Johnson's pulse oximetry reading from 99% to 97%. Van Norman Decl., ECF 374-3, at 3–4. But the district court accorded that opinion "minimal weight" because pulse oximetry readings are subject to minor variation and Johnson's readings were still within a normal range. *Execution Protocol Cases*, ECF 394, at 18.

her written declaration, that Higgs and Johnson would experience edema "within a second or two" of the injection, and thus at least thirty seconds before becoming insensate. H'rg Tr. at 192. Van Norman's testimony on this point is akin to evidence held insufficient to warrant a stay in *Lee*. There, Van Norman testified that the onset of pulmonary edema could be "virtually instantaneous" in even healthy persons injected with pentobarbital. Van Norman Decl., ECF 26-14, at 33. The Supreme Court declined to credit that thinly supported assertion in *Lee*. And we see no ground for distinguishing it from the near-identical claim that Van Norman has raised here.

Because the plaintiffs have failed to show more than "competing expert testimony" on the factual issues that undergird their method-of-execution challenge, they have not "made the showing required to justify last-minute intervention." *Lee*, 140 S. Ct. at 2591–92.

Apart from the merits, the balance of the equities also favors vacatur. Higgs and Johnson each committed multiple murders. *United States v. Higgs*, 353 F.3d 281, 289–91 (4th Cir. 2003); *United States v. Tipton*, 90 F.3d 861, 868–70 (4th Cir. 1996). Both men have exhausted all available direct and collateral challenges to their convictions and sentences. *Higgs v. United States*, 138 S. Ct. 2572 (2018); *Johnson v. United States*, 546 U.S. 810 (2005). They have had ample opportunity to file clemency petitions. And the Supreme Court repeatedly has stressed that the public has a "powerful and legitimate interest in punishing the guilty," *Calderon v. Thompson*, 523 U.S. 538, 556 (1998), which includes "an important interest in the timely enforcement of a [death] sentence," *Bucklew*, 139 S. Ct. at 1133 (2019).

For these reasons, I vote to vacate the preliminary injunction, as the Supreme Court did in *Lee*.

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 21-5004 **September Term, 2020**

Pillard, *Circuit Judge*, dissenting:

Cory Johnson and Dustin Higgs are housed at the Federal Correctional Institution in Terre Haute, Indiana, the site of a COVID-19 outbreak. On December 16, both men tested positive for the virus. In the days that followed, Johnson and Higgs quickly moved to enjoin executions that the government less than two months ago scheduled for January 14 and 15. Their supplemented and amended complaints alleged that the lung damage they suffer as a result of their COVID-19 infections substantially increases the risk that they will unnecessarily experience agonizing pain if they are executed pursuant to the government's lethal injection protocol this week. The government declined to postpone the executions, so the district court scheduled a two-day evidentiary hearing on this newly arising claim in the limited time that remained. Based on evidence developed at the hearing and in light of the existing record in these cases about the operation on the human body of the government's chosen lethal injection drug, the court found that executing the plaintiffs under the protocol at issue so soon after their COVID-19 diagnoses was indeed likely to cause them severe pain in violation of the Eighth Amendment. It thus granted "a *limited* injunction to allow [the plaintiffs] the opportunity to adequately recover from COVID-19." Mem. Op. 3, *In re Fed. Bureau of Prisons' Execution Protocol Cases*, No. 05-cv-2337 (D.D.C. Jan. 12, 2021) [hereinafter Mem. Op.].

The government now moves to stay that injunction. I would deny the government's motion because the traditional factors for equitable relief pending appeal weigh strongly in favor of the plaintiffs. *See Nken v. Holder*, 556 U.S. 418, 434 (2009).

There is no dispute in this case that Higgs and Johnson were diagnosed with COVID-19 and have demonstrated symptoms since those diagnoses consistent with COVID-19 infections. The issue here is what effect if any their infections will have on their executions. Since last summer, the plaintiffs have been litigating a claim that their executions pursuant to the government's single-drug lethal injection protocol would violate the Eighth Amendment. The basis for this claim is evidence that the drug the government uses under the protocol—a barbiturate called pentobarbital—"causes inmates to experience 'flash pulmonary edema,' a medical condition in which fluid rapidly accumulates in the lungs, causing respiratory distress and sensations of drowning and asphyxiation." *See In re Fed. Bureau of Prisons' Execution Protocol Cases* (*Protocol Cases*), 980 F.3d 123, 131 (D.C. Cir. 2020) (citation and internal quotation marks omitted). The caustic nature of pentobarbital is responsible for that effect; after the drug is injected into the veins, it burns membranes in the lungs that separate blood carrying oxygen from the air sacs that collect that oxygen, thereby causing the accumulation of fluid in the lungs. In November, we

reversed the district court's dismissal of this claim, holding that the plaintiffs had plausibly pleaded an Eighth Amendment claim. *Id*. at 131-35. We noted then that "[t]he government has not contested that most individuals who are executed through the lethal injection of pentobarbital experience flash pulmonary edema," but identified a key remaining factual dispute as whether "the condition occurs only after the inmate has been rendered insensate." *Id*. at 131.

The challenge before us is related to that one, but both factually and legally distinct. The plaintiffs allege with expert support that COVID-19 causes its own damage to the lungs, including to the membranes susceptible to burning by pentobarbital. Because of this damage, the district court credited the plaintiffs' evidence that they will experience flash pulmonary edema more quickly than they might absent their infections, "caus[ing] them to experience the sensation of drowning caused by flash pulmonary edema almost immediately after injection but before they are rendered unconscious." Mem. Op. 2.

The government's motion requires that we engage in two nested inquiries, considering the plaintiffs' Eighth Amendment claim through the lens of the burden the government bears in seeking the "exceptional remedy of [a stay] pending appeal." *John Doe Co. v. CFPB*, 849 F.3d 1129, 1131 (D.C. Cir. 2017). To make out their Eighth Amendment method-of-execution claim, the plaintiffs have to (1) show their method of execution presents "a 'substantial risk of serious harm'" and (2) identify an alternative method that reduces the risk and is "feasible" and "readily implemented." *Glossip v. Gross*, 576 U.S. 863, 877 (2015) (quoting *Baze v. Rees*, 553 U.S. 35, 50, 52 (2008)). In granting the preliminary injunction, the district court found that the plaintiffs were likely to succeed in establishing both of those elements. Our task is to determine whether to step in and stay the district court's order. Before we may do so, we must determine: "(1) whether the [government] has made a strong showing that [it] is likely to succeed on the merits; (2) whether [the government] will be irreparably injured absent a stay; (3) whether issuance of the stay will substantially injure the other parties interested in the proceeding; and (4) where the public interest lies," *Nken*, 556 U.S. at 434 (quoting *Hilton v. Braunskill*, 481 U.S. 770, 776 (1987)).

In my view, each of these four factors individually supports denying the government's requested stay; together, they require as much.

The government focuses on the first factor, arguing that it is likely to succeed in defeating the plaintiffs' method-of-execution claim. The government lacks the "strong showing" required to establish a likelihood of success on the merits. *Id.* It argues that the district court "*could not* have found" the plaintiffs established their Eighth Amendment

claim, asserting that their as-applied COVID-19 challenge does not rise above a battle of the experts. Mot. to Stay 13 (emphasis added). But the government's persistence in highlighting its experts' disagreements with the plaintiffs' experts, *see id.* at 12-13, sidesteps the district court's factfinding after a hearing with live testimony and fails to acknowledge the deference we owe to that factfinding. The court considered the competing evidence and expert testimony offered by the government but repeatedly found that the plaintiffs' evidence and experts were more persuasive and credible. *See, e.g.*, Mem. Op. 10-11 (plaintiffs' witness was "highly credible" and "provided credible and persuasive responses to criticism of her opinions"); *id.* at 13 (plaintiffs' witness "was particularly persuasive and helpful"); *id.* at 14 (government's witness's declaration was unpersuasive and his "live testimony cast further doubt on his credibility"). And for good reason. For instance, one of the government's two witnesses to testify at the evidentiary hearing demonstrated basic misunderstandings of the two plaintiffs' medical records and asserted that x-rays of Higgs's lungs before and after his diagnosis were "unchanged" despite what the district court pointed out were differences on the x-rays visible to even a lay person. *Id.* at 15. In seeking a stay of the district court's order, the government offers no basis for disturbing the district court's carefully considered evidentiary and credibility factual findings.

As the Supreme Court has reminded us—including specifically in the death penalty context— "we review the District Court's factual findings under the deferential 'clear error' standard. This standard does not entitle us to overturn a finding 'simply because [we are] convinced that [we] would have decided the case differently.'" *Glossip*, 576 U.S. at 881 (alterations in original) (quoting *Anderson v. Bessemer City*, 470 U.S. 564, 573 (1985)). Here, the district court weighed expert declarations, live expert testimony, and the two plaintiffs' medical records, including Higgs's x-rays showing injury to his lungs. Based on that evidence, it found as a matter of fact "that as a result of their COVID-19 infection, [the plaintiffs] have suffered significant lung damage such that they will experience the effects of flash pulmonary edema one to two seconds after injection and before the pentobarbital has the opportunity to reach the brain." Mem. Op. 3. It also found based on detailed expert testimony that the rapid accumulation of fluid in the lungs during flash pulmonary edema would "subject Plaintiffs to a sensation of drowning akin to waterboarding." *Id.* The government has not shown that any of those findings were clearly erroneous, so we cannot overturn them. *See Mills v. District of Columbia*, 571 F.3d 1304, 1308 (D.C. Cir. 2009).

The government contends that, even accepting the district court's factual findings, the facts do not support the plaintiffs' claim. It first suggests that the district court applied the wrong legal standard, "fail[ing] to determine whether inmates have carried their burden of providing evidence that the challenge method 'is *sure or very likely* to result in needless

suffering.'" Mot. to Stay 11 (quoting *Glossip*, 576 U.S. at 881). But the district court expressly recited exactly that burden, Mem. Op. 8 (quoting *Baze*, 553 U.S. at 49-50), and then went on to find that the plaintiffs "*will suffer* the effects of flash pulmonary edema anywhere from thirty seconds to two-and-a-half minutes after injection," *id.* at 11 (emphasis added). The government argues that the district court was wrong to apply a preponderance of the evidence standard, relying on the Supreme Court's guidance that "federal courts should not 'embroil [themselves] in ongoing scientific controversies beyond their expertise.'" Mot. to Stay 12 (alteration in original) (quoting *Glossip*, 576 U.S. at 882); *see also id.* at 11-14. But what the *Glossip* Court drew from that consideration of judicial competence was not a heightened procedural standard of proof, as the government suggests, but rather a demanding substantive standard. As the Court's next statement made clear, "an inmate challenging a protocol bears the burden to show, based on evidence presented to the court, that there is a substantial risk of severe pain." *Glossip*, 576 U.S. at 882. That is precisely what the district court found the plaintiffs did here.

The government alternatively suggests that the Supreme Court's decision turning away an as-applied Eighth Amendment challenge to a single-drug pentobarbital protocol in *Bucklew v. Precythe*, 139 S. Ct. 1112, 1130 (2019), forecloses plaintiffs' claim here. "Here, as in *Bucklew*," the government argues, the plaintiffs' claim "rests . . . on a brief period of alleged pain before pentobarbital renders them unconscious." Mot. to Stay 15. But "[a]t no point did *Bucklew* hold that any particular period of excruciating suffering is a non-event for Eighth Amendment purposes." Opp. to Mot. 10. Nor did it address the execution protocol or allegations of flash pulmonary edema at issue here. It could not have done so given that, as we have previously noted, neither that protocol nor those allegations were before the *Bucklew* Court. *See Protocol Cases*, 980 F.3d at 130-31, 134-35.

Closer to the claim at hand, the government argues that *Barr v. Lee*, 140 S. Ct. 2590 (2020)—in which the Supreme Court on July 14, 2020, vacated an order preliminary enjoining all of the then-scheduled executions in this case—requires that we also vacate the narrow, time-limited relief before us today. But neither these plaintiffs' current, as-applied claims nor the factual findings the district court made on the evidentiary record after last week's hearing were before the court in *Lee*. The Eighth Amendment claim the Supreme Court in *Lee* held unlikely to succeed was that execution by lethal injection of pentobarbital alone likely caused flash pulmonary edema and associated suffering in all persons subject to that method. The plaintiffs' evidence at that stage was limited to expert declarations.

In vacating that preliminary injunction, the Court in *Lee* underscored that the government had "produced competing expert testimony of its own," and that the paper

record failed to make "the showing required to justify last-minute intervention by a Federal Court." *Id.* at 2591. Here, by contrast, the plaintiffs' focused, as-applied challenges arise from the extraordinary circumstance of facing execution while infected with COVID-19. The district court found that Higgs and Johnson's pulmonary impairment from the disease exposes them to an elevated, substantial, and unnecessary risk of severe pain. Plaintiffs had no basis to raise such claims before their diagnoses,[2] so can hardly be disparaged as requesting "last-minute" court intervention. The government has again produced expert evidence seeking to rebut the plaintiffs' new claims, as it did in *Lee*. But the record now, unlike then, includes factual findings the district court made based on an evidentiary hearing at which it observed live witness testimony and weighed the individual experts' competencies and credibility. *Cf. id.* at 2594 (Sotomayor, J., dissenting) (noting "no factfinder ha[d] adjudicated" those claims). And at this hearing, one of the plaintiffs' experts who the district court found credible testified that, even assuming the government was right about the factual dispute in *Lee*—that is, that a healthy individual executed with pentobarbital would be unconscious when flash pulmonary edema occurred (a claim with which the expert disagreed)—it was nonetheless "certain" that an individual diagnosed with COVID-19 would be sensate at the onset of flash pulmonary edema and thus experience the accompanying "sensation of drowning and suffocation." Tr. of 1/5/21 Mot. Hearing at 115, *Protocol Cases*, No. 19-mc-145 (D.D.C. Jan. 7, 2021), ECF No. 389.

The government has also failed to make a strong showing that the plaintiffs are likely to fail on the second element of their method-of-execution claim. The plaintiffs identified two alternative methods of execution, each of which the district court found is feasible and would significantly reduce the risk of severe pain. The first is a two-drug protocol that would add a pre-dose of an opioid pain medication, such as morphine or fentanyl—a method of execution we have previously observed "has been used by both states and the federal government, and is still used in a number of jurisdictions." *Protocol Cases*, 980 F.3d at 133. The government emphasizes that we have not before reached the issue of

[2] Indeed, just a week before those diagnoses, the district court dismissed as speculative Higgs' challenge to his scheduled execution based on the risk that he would contract COVID-19. *See* Mem. Op. 1, *In re FBOP Protocol Cases*, No. 19-mc-145 (D.D.C. Dec. 9, 2020), ECF No. 354. Higgs had filed a complaint in September raising concerns that he was particularly vulnerable to COVID-19 because of his asthma. *See* Complaint at 26-27, *In re FBOP Protocol Cases*, No. 19-mc-145 (D.D.C. Sept. 1, 2020), ECF No. 229-1. The government dismissed Higgs' allegations about COVID-19 at Terre Haute as "dated" two months later. *See* Mem. in Support of Mot. to Dismiss Higgs' Complaint at 10 n.3, *In re FBOP Protocol Cases*, No. 19-mc-145 (D.D.C. Nov. 3, 2020), ECF. No. 306-1.

whether the plaintiffs can actually succeed in establishing that such a method is an adequate alternative, and that the plaintiffs here have failed to offer evidence sufficient to do so. *See* Mot. to Stay 18. But the district court itself found based on expert testimony that the proposed two-drug protocol "is likely to be as effective as it is easily and quickly administered." Mem. Op. 23; *see also id.* at 21 (citing expert declaration). The second is execution by firing squad—a method that two Justices have suggested could be a constitutionally permissible alternative. *See Bucklew*, 139 S. Ct. at 1136 (Kavanaugh, J., concurring); *Arthur v. Dunn*, 137 S. Ct. 725, 733-34 (2017) (Sotomayor, J., dissenting from the denial of certiorari). The government argues here that the difference in pain between execution by firing squad and the government's existing lethal injunction protocol is not sufficient to support an Eighth Amendment claim. But again, the district court found otherwise, citing evidence that suggests "execution by firing squad would significantly reduce the risk of severe pain." Mem. Op. 24. On neither of these proposed alternatives does the government even seek to establish that the district court's factual findings are clearly erroneous.

More importantly, under the unique circumstances of this case, holding off on the plaintiffs' executions until they can recover from COVID-19 itself constitutes a clearly adequate alternative "method" of execution. The plaintiffs' as-applied COVID-19 claim is unlike other method-of-execution challenges insofar as they do not seek to avoid entirely the method of execution the government has chosen. All they ask is that they not be executed in that manner while suffering from COVID-19. Holding off on their executions until they recover is an alternative course that is both feasible and readily implemented, as the government's repeated scheduling and rescheduling of various execution dates since 2019 makes clear. As the district court found, the gratuitous pain to the plaintiffs' COVID-19-infected lungs "would not occur were [their] execution[s] to be delayed." Mem. Op. 16. Proceeding with the executions as scheduled would thus "cruelly superadd[] pain to the death sentence," *Bucklew*, 139 S. Ct. at 1125, imposing on the plaintiffs "needless suffering" in violation of the Eighth Amendment. *Glossip*, 576 U.S. at 877 (quoting *Baze*, 553 U.S. at 50).

The government's briefing on the other three stay factors only underscores that each weighs even more heavily in the plaintiffs' favor than the first. As for irreparable injury—a "critical" factor in the traditional stay standard, *Nken*, 556 U.S. at 434—the government will suffer none in the absence of a stay. All that the district court's order requires is that the government delay executing the plaintiffs until March. "After suspending federal executions for over seventeen years," the district court observed, "the government announced a new Execution Protocol and a resumption of executions in July 2019, and since July [2020] has

executed eleven inmates. Any potential harm to the government caused by a brief stay is not substantial." Mem. Op. 29.

Issuance of the stay, on the other hand, would clearly cause the other parties in this case substantial, irremediable harm: Plaintiffs would be executed via a method that the district court has determined is likely under the current circumstances to cause them agonizing, readily avoidable pain. And the public interest most evidently weighs in favor of denying the stay. The Court has made clear that "the State and the victims of crime have an important interest in the timely enforcement of a sentence." *Bucklew*, 139 S. Ct. at 1133 (quoting *Hill v. McDonough*, 547 U.S. 573, 584 (2006)). But in the capital punishment context, "the public's interest in seeing justice done lies not only in carrying out the sentence imposed years ago but also in the lawful process leading to possible execution." *Montgomery v. Barr*, No. 20-3261, 2020 WL 6799140, at *11 (D.D.C. Nov. 19, 2020). Proceeding with the executions of inmates infected with COVID-19 poses serious health risks not only to inmates but also the prison officials responsible for administering the death penalty and those choosing to or charged with witnessing it. Given that the district court has delayed the executions only long enough to ensure the plaintiffs no longer suffer from COVID-19, its order appropriately balances an interest in timely enforcement against the likelihood of unconstitutional harm to the plaintiffs and health risks to the public.

* * *

Following a series of eleven executions carried out by the federal government since July 2020—including nine executions of plaintiffs in this case—Johnson and Higgs are the only federal inmates left on death row who face a scheduled execution. The government insists that these final scheduled executions must proceed as planned. It fails to explain why they must take place this week. To be sure, the Supreme Court has emphasized that "[l]ast-minute stays should be the extreme exception, not the norm," in death penalty cases, and that "'the last-minute nature of an application' that 'could have been brought' earlier . . . 'may be grounds for denial of a stay.'" *Bucklew*, 139 S. Ct. at 1134 (quoting *Hill*, 547 U.S. at 584). But Johnson's and Higgs' claims could not have been brought earlier. As soon as they knew of their COVID-19 diagnoses, they notified the district court; within days, they supplemented their complaints. The district court then held an evidentiary hearing in the limited time it had available, and, based on the evidence presented at that hearing, granted a limited preliminary injunction, delaying the plaintiffs' executions only long enough for them to recover from COVID-19. Contrary to the government's assertion, nothing about the issuance of this injunction was "untimely." Mot. to Stay 1. The district court ably responded to evolving circumstances and carefully assessed the plaintiffs' unique method-

of-execution challenge—a category of Eighth Amendment claim that the Supreme Court, even in establishing a high substantive bar, has nonetheless continued to leave available to death row inmates like the plaintiffs here.

Our task is to determine whether the government is entitled to a stay of the district court's injunction pending appeal. For the above reasons, I believe the government has failed to meet the high burden required to second-guess the district court's factfinding and stay its order. Any desire on the part of the government to check two more executions off its list does not justify concluding otherwise. I would thus deny the stay.

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

IN THE MATTER OF THE	**.**	**MC No. 19-0145 (TSC)**
FEDERAL BUREAU OF PRISONS'	**.**	**Washington, D.C.**
EXECUTION PROTOCOL CASES.	**.**	**Monday, January 4, 2021**
. . . . . .		**11:38 a.m.**

DAY 1
TELEPHONIC MOTION HEARING
BEFORE THE HONORABLE TANYA S. CHUTKAN
UNITED STATES DISTRICT JUDGE

APPEARANCES:

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C O N T E N T S

WITNESS TESTIMONY

P R O C E E D I N G S

THE DEPUTY CLERK: Your Honor, we have Miscellaneous Action 19-145, In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases. I'll ask that government counsel identify herself; and those who will be speaking on behalf of the plaintiffs, identify yourselves as well. Thank you.

MS. LIN: This is Jean Lin on behalf of the government. Good morning, Your Honor.

THE COURT: Good morning, Ms. Lin.

MR. KURSMAN: Good morning, Your Honor. This is Alex Kursman on behalf of Dustin Higgs.

THE COURT: Mr. Kursman, will you be handling this?

MR. KURSMAN: I will be handling this.

THE COURT: Okay. Anybody else? Has everyone checked in with Mr. Bradley?

UNIDENTIFIED: Yes, Your Honor.

THE COURT: Okay. So Ms. Lin and Mr. Kursman will be speaking for the parties?

MR. KURSMAN: That's right, Your Honor.

MS. LIN: Yes, Your Honor.

THE COURT: All right. Let's begin. You want to call Dr. Crowns. I'm sorry, does he go by Crowns or Von Crowns?

MS. LIN: Dr. Crowns. Your Honor, before we begin, I have two preliminary points,

if I may.

THE COURT: Yes.

MS. LIN: The first is just to let the Court know that our witness tomorrow, Dr. Locher, he's on call, and there's a possibility that if there's an emergency he'll need to drop off immediately. Unfortunately, he's on call all week. So.

THE COURT: That's fine.

MS. LIN: The second point is we're moving to strike the declaration of Dr. Mitchell Glass. The declaration was filed last night in support of the plaintiffs' reply brief. Dr. Glass was not on the parties' list of witnesses filed last Thursday. And the reason -- the primary reason also is that not only were we surprised by the new witness being -- new declaration being submitted, but also that Dr. Glass's declaration is seeking to insert new medical theories for the fourth time in this case on reply.

The new theories do not have to do with Mr. Higgs' recent COVID-19 diagnosis, so they could have been raised at the very latest by December 4, 2020, the deadline the Court imposed. And so just a very quick point about the new theories, which is why it's very difficult even before to do a cross-examination.

You know, for example, Dr. Glass states that Mr. Higgs suffers from aspirin-exacerbated respiratory disease, which then establishes the severity of Mr. Higgs' asthma? None of

the experts so far for the plaintiffs have said anything about this prior to late yesterday.

And, you know, even a preliminary look at the recent medical records doesn't indicate such a diagnosis. It's also very odd to us that, from medical records, we could see at least that Mr. Higgs has been taking aspirin for the last two years, which would seem to be inconsistent with being allergic to aspirin.

And there's another new theory about the pentobarbital would trigger a massive asthma attack in one second. Again, none of his other experts have said anything about this, and so this is new.

So to the extent that Dr. Glass's declaration talks about COVID-19 and Mr. Higgs' asthma in connection with that, it is cumulative with the plaintiffs' other experts, Dr. Zivot and Dr. Stephen. Both are licensed medical doctors. And I just want to note that based on our very quick search in the state of Pennsylvania licensing verification system, Dr. Glass has not held an active medical license since December 1990. So he has not treated any patients for 30 years. So for all these reasons, we move to strike the declaration of Dr. Mitchell Glass.

THE COURT: Okay. So I haven't even looked at Dr. Glass's declaration, which is maybe a good thing since you've moved to strike it, and I'm concerned by what I'm hearing from Ms. Lin. You know, I know this is death-penalty litigation

and, by necessity, there are a lot of last-minute filings. But the Supreme Court has cautioned against this sort of last-minute litigation.

And I have repeatedly stressed to the parties that I'm trying as hard as I can with the rest of my docket to consider, to deal with issues, to deal with motions well in advance of the execution date so that the parties can appeal if necessary, can properly brief the issue, so then I'm not having to make decisions with very little time. And so the declarations that were filed, I've been reviewing them all weekend, and I'm frankly concerned to hear that you all filed something last night. Mr. Kursman?

MR. KURSMAN: Yes. Thank you, Your Honor.

So to begin with, I just want to note for the Court that we filed an as-applied claim raising a COVID challenge even before Mr. Higgs was diagnosed with COVID.

THE COURT: I remember that.

MR. KURSMAN: So that was dismissed as speculative. The government responded with a declaration saying they were taking all these protections that the inmates would not get COVID. Then on December 16th Mr. Higgs is diagnosed with COVID. They notified plaintiff's counsel on December 17th. Within five days, we filed a new complaint with all of our expert declarations --

THE COURT: But let me stop you, Mr. Kursman.

That complaint did not include the declaration of Dr. Glass, did it?

MR. KURSMAN: No. Sure. And that's what I want to get to, Your Honor. So the responsive pleading filed by the government was filed late at night on New Year's Eve. To get opinions from our doctors from, I believe it was --

THE COURT: Hold on one minute, Mr. Kursman. Can I ask you to hold on one minute?

MR. KURSMAN: Sure.

(Pause)

THE COURT: All right. Sorry. Go on.

MR. KURSMAN: So the government's responsive pleading was filed on New Year's Eve, late on New Year's Eve. Our reply was due three days later, that Sunday night. So from Thursday night to Sunday night, we were scrambling at that point to get some sort of reply; and a lot of these doctors that we're dealing with have, obviously, private lives but also have practices going on, and they were unavailable.

THE COURT: Not Dr. Glass, apparently.

MR. KURSMAN: That's right. So Dr. Glass we were able to reach out to, and we got a declaration that was responsive to the declaration submitted in the government's responsive brief related to his asthma and COVID.

Now, Ms. Lin brings up some points that they searched and he's no longer licensed. All of those points are free to be

brought up on cross-examination.

THE COURT: I'm less concerned about that. Please, can you address Ms. Lin's contention that Dr. Glass's declaration brings up new theories that the government is prejudiced from being able to address because of when the declaration was filed?

MR. KURSMAN: Sure. So on New Year's Eve, the government submitted a new declaration from Dr. Locher, a doctor that we had never seen before in this litigation, and Dr. Locher went on to say that Mr. Higgs' asthma is actually mild or moderate. Dr. Glass is responding to that with his aspirin-induced asthma, said no it's not and here's why, it's because he has this aspirin-induced asthma.

All of what's contained in Dr. Glass's declaration is responsive to Dr. Locher, and the reason we had to go to Dr. Glass is because, at that point, it was New Year's Eve. Our reply -- and we agreed with the government that we would file our reply by Sunday at 5 p.m., even though Your Honor allowed us to file by midnight, to give them more time to prepare. We were scrambling to get a doctor to respond to this new declaration from a new doctor that we had seen for the very first time.

And remember, Your Honor, that we filed our initial as-applied complaint five days after they informed us that our clients were diagnosed with COVID, and the government is actually the ones who waited one day, from December 16th to

December 17th, to tell us about that diagnosis. And they're also the ones that moved to dismiss our earlier COVID complaint, saying it was unlikely that Mr. Higgs would ever be diagnosed with COVID.

THE COURT: Well, I ruled that the initial as-applied challenge was speculative because he did not have COVID, so how the government responded to that motion is neither here nor there. But once the diagnosis was made, I agreed that the complaint was appropriate, or at least it was ripe for resolution.

I have not seen the declaration. Are you planning on calling him tomorrow? I mean -- and let me caution the parties. This is my third evidentiary hearing, I believe, in this case. I've lost track. But I've heard from most of these witnesses before. I've reviewed their declarations; I've reviewed supplemental declarations. I know the parties have asked for two and a half hours on each side tomorrow. I'm hoping we will not take five hours, but are you planning on calling Dr. Glass, Mr. Kursman, tomorrow?

MR. KURSMAN: Your Honor, we actually hadn't made a definitive decision --

THE COURT: Well, if you don't call him, how is the government able to cross-examine him on his professional qualifications?

MR. KURSMAN: Well, my understanding -- and correct me if I'm wrong, Your Honor. My understanding of the contours

of the hearing were that parties could decide who they wanted to call on direct, but each party had the opportunity to cross-examine, sort of like what we did in September. But my understanding was for -- like including today, my understanding coming in was just that Dr. Crowns would be -- his testimony would only be me cross-examining him and no direct examination.

THE COURT: That's correct. You're not wrong. But my point -- hold on. My point is Ms. Lin asserts that Dr. Glass basically may not be qualified to testify as an expert. That has not been the issue -- or if it has, it's been resolved -- with the other witnesses. How is Ms. Lin going to challenge Dr. Glass, his qualifications as a witness, if he doesn't testify?

MR. KURSMAN: I apologize, Your Honor.

MS. LIN: Can I respond?

THE COURT: Is he available to testify and be cross-examined by Ms. Lin?

MR. KURSMAN: Yes.

THE COURT: Okay. All right. Not that you would call him, but that he would be available for cross-examination. Ms. Lin.

MS. LIN: Yes, Your Honor. A couple of points. Given the parties' agreement, for some witnesses we may do limited direct testimony, and that's what I plan to do with Dr. Crowns today. But as to Dr. Glass, though, the problem

we have is not whether we get an opportunity to cross-examine. This is a declaration that raises new theories. The idea of what's called the aspirin-exacerbated respiratory disease is nowhere mentioned prior to yesterday.

So to the extent that Mr. Kursman referenced Dr. Locher's declaration and talking about the severity of Mr. Higgs' asthma condition, that was in response directly to the plaintiff's complaint and to the PI motion indicating that Mr. Higgs has a condition that's more severe, so we're talking new medical theories. And there's another, which is that the pentobarbital would trigger a massive asthma attack in one second.

Again, his expert hadn't said anything about that, and we are prejudiced in a significant way in the sense of, other than being able to talk about his lack of medical license, this is the kind of medical theory that we need doctors we need to be able to rebut.

And these, more importantly, are conditions about his asthma that could have been raised not only at the time of the amended complaint when they filed for PI motion, or even giving us some sense as of last Thursday when the parties talked about what witnesses they're planning to proffer.

And for the government, even though our brief was filed on New Year's Eve, we shared our proposed new witness, Dr. Locher, as well as the health service administrator's name, prior to that so that the party can prepare. But I think we're at a

disadvantage because of the new medical theories proffered in this new declaration. And, again, to the extent it's been COVID, it's already cumulative of the licensed doctors that --

THE COURT: Okay. This hearing is supposed to be a short hearing to accommodate Dr. Crowns' schedule. What I'm going to do is I'll look at the declaration of Dr. Glass. And I've heard the parties' objections, and I will give you tomorrow -- if I don't rule by minute order before the hearing tomorrow, which may not happen, I'll rule on this issue tomorrow.

But I need to think about it. I'm not going to rule on it right now, obviously, because I'm just hearing this motion to strike. So let's proceed with Dr. Crowns' testimony.

MR. KURSMAN: Your Honor, before we begin, can I bring up one housekeeping matter?

THE COURT: Yes.

MR. KURSMAN: Which is, in the September hearing, it got a bit confusing when plaintiffs' counsel was cross-examining with references relied on by the experts. I was planning on sending the prosecution [sic] and the Court those references so that the experts could be provided with those references so it would be easier to understand as the cross is going. I just don't want to clog up the entire inbox of all plaintiffs' counsel. So the question is what would the Court prefer in terms of how I should send those documents before tomorrow?

THE COURT: I guess it makes sense to send them to

the plaintiffs' counsel that are still in the case, of which there are two, two plaintiffs left. That's all I can suggest.

MR. KURSMAN: Okay. Thank you, Your Honor.

THE COURT: And, obviously, to the Court. And they'll need to be filed on the docket. All right? Or I suppose, Mr. Kursman, you could inquire to the other plaintiffs' counsel if they want those documents. But many -- there have been many motions to dismiss, so I think that makes sense.

All right. Let's begin with Dr. Crowns. And, Mr. Kursman, you're going to cross-examine him; is that correct?

MR. KURSMAN: That's correct, Your Honor.

THE COURT: Okay. Go ahead.

THE DEPUTY CLERK: Okay. Is it Dr. Crowns?

Please raise your right hand.

KENDALL VON CROWNS, WITNESS FOR DEFENDANT, SWORN

DIRECT EXAMINATION

BY MS. LIN:

Q. Dr. Crowns, do you recall that you provided oral testimony in this case on September 18, 2020?

A. Yes.

Q. Okay. And do you recall that you were asked about your opinions from your declaration that says that there's no way to determine, based on autopsy findings, how quickly the pulmonary edema occurred; but even if the edema was a flash situation, it would take minutes to occur? Do you recall then -- do you

remember that question?

A. Yes. Yes, I do.

Q. And do you recall the following question and answer -- and for the Court's reference, that's page 18, line 1, of the September 18th transcript.

"Question: Now, are you aware that there are case studies showing that flash pulmonary edema can happen in seconds or even instantaneously?

"Answer: I don't know the one with instantaneously. I know there's a case report of an individual who developed flash pulmonary edema, but he had underlying heart issues, specifically mitral valve issues as well as other heart problems. So his heart was already compromised when the flash pulmonary edema occurred.

"So in his situation, his flash pulmonary edema was the result of the fact that he already had a compromised heart which then resulted in him developing edema more rapidly than normal. So you have an individual that was already kind of critical when this occurred. But beyond that, I don't know of any other statements with flash pulmonary edema where it doesn't always say that it occurs. The time frame seems to be minutes."

Do you recall this testimony?

A. Yes, I do.

Q. And what was the case report that you were referring to in that testimony?

A. The case report is from an article in the *British Journal of Anesthesiology* that comes from 1967, and it's entitled "Pleural Effusion Complicating Thiopentone Administration." The case report is by M.W. Potts and P.W.R. Smethurst.

Q. And how many patients were involved in that Potts study?

A. It is a single patient.

Q. And what was -- can you describe the Potts study for us?

A. So they are reporting on an individual who, during a cardiac surgery, had acute pulmonary edema as well as kind of heart failure during it and the exact symptomatology that occurred, and then how they brought the patient out of it and then his subsequent recovery.

Q. And what's the scientific significance of having only one patient in the study?

A. The scientific significance is it's basically a single report. So it could be an anomaly that doesn't occur very often, and you'd have to look at more people to get a better idea if this was something that occurs regularly or if this is just a one-time thing.

Q. Do you recall what the dosage was in the study?

A. In the study, the dosage of the thiopentone administered was 325 milligrams.

Q. And what, if any, significance do you attach to the fact that the dosage is 325 milligrams?

A. The significance of that is it's a standard IV dose that

they were giving for the purpose of anesthetizing the patient.
Q. And are you aware of the dosage that was being used in the federal government's Bureau of Prisons' execution protocol as to pentobarbital?
A. I was aware. Let's see. Right off the top of my head, I can't tell you. I thought it was five -- I can't give you the exact number right off the top of my head. I apologize.
Q. Can I refresh your memory about that, that what's not disputed is that it's 5 grams of pentobarbital --
A. Yes. Five grams. That's right. It is 5 grams.
Q. So what significance do you attach to the distinction between the 325 milligrams and the 5,000 milligrams that was being used in the federal execution protocol?
A. The distinction is that the federal execution protocol amount is significantly, almost over five times, higher than what was used in this particular case.
Q. And does the study say specifically when the onset of the pulmonary edema in that one patient was?
A. So it's a little vague, but it appears that the pulmonary edema they really notice, or take note of, it is about after eight minutes had elapsed after induction, and they were noticing the blueness of the skin was persisting. So they really feel that at around the eight-minute mark there's something going on.
Q. Now, do you see anything in the Potts study for the proposition that pulmonary edema developed within seconds or

instantaneously?
A. No. I don't.
Q. And can you describe for us the underlying heart issues of the patient described in the Potts study?
A. Certainly. So he had -- as a child, he had had rheumatic fever. So he probably had subsequent damage to his heart because of that, and what he had was mitral stenosis and mixed aortic valve disease. So two of the valves of the heart are damaged.

Then he was also noted to have evidence of chronic venous congestion as well as hemosiderosis. These are signs of congestive heart failure. The hemosiderosis in particular is like blood being shown in the lungs from long-term congestive heart failure.

And then he's also noted to have poor circulation in his lower limbs. So, again, that goes back to heart failure. Basically, the heart's not able to get the circulation back from the legs to the heart, and so you start seeing changes in the lower limbs that we call venous stasis.

You'll see edema, and then they'll also get pain, which is called "claudication," which he was also experiencing. So he had several symptoms of heart failure already present before his heart surgery.
Q. During -- and I want to refer you to the brief that I sent you yesterday that was the plaintiffs' reply brief that was filed

yesterday. And in it, on page 14, ECF No. 383 -- you don't need to read it if you don't want to. I'm going to read it to you. So it stated, and I quote:

"During the course of the September 18th evidentiary hearing, Dr. Crowns testified that 'there's a case report of an individual who developed flash pulmonary edema' during an execution with pentobarbital, 'but he had underlying heart issues, specifically mitral valve issues, as well as other heart problems.'"

Does that accurately describe your testimony?

A. So, I mean, it wasn't during an execution; it's during cardiac surgery, with specifically mitral valve issues and aortic valve issues as well. So he did have an already compromised heart when his edema occurred.

That's characterized correctly. But it wasn't during an execution, obviously. It was during cardiac surgery, and his heart issues were mitral valve and aortic valve.

Q. Have you reviewed Mr. Higgs' medical records from 2020?

A. Yes.

MS. LIN: For the Court's reference, the medical records are attached to the declaration of Shauna Smiledge, and that is Exhibit 4 to the government's opposition to the preliminary injunction motion, which is ECF No. 380-4.

BY MS. LIN:

Q. Dr. Crowns, based on the medical records and focusing

just on the period before Mr. Higgs' COVID diagnosis, which was December 16, 2020, what is your opinion about whether Mr. Higgs' heart condition -- I'm sorry. What is your condition [sic] of Mr. Higgs' heart condition?

A. So Mr. Higgs has a mitral valve prolapse with some mitral valve regurgitation, meaning he gets kind of -- when his heart pumps, his blood comes back into his heart slightly. But from the information in the medical records, he does not have any symptoms of heart failure. And from his echocardiogram that was performed, it appears that his heart's functioning normally. I would refer you to his medical records, if I could, on -- it's labeled Higgs 101. It's the Federal Penitentiary Cardiology Clinic consult.

Q. I'm sorry. Doctor, can you just pause? What's the number? 101, did you say?

A. 101.

Q. 101. Okay. Please proceed.

A. This is the Federal Penitentiary Cardiology Clinic consult that appears to have been by Dr. Mercho on November 5, 2020. In this he states in his impression that there's moderate mitral valve prolapse with moderate mitral regurgitation, which has not been progressing. And in his plan he states that, from a cardiac standpoint, the gentleman appears to be stable.

Also, he notes that the lungs are clear to auscultation, which means when he puts a stethoscope up to the chest, that he

doesn't hear any symptoms such as rales or crackles or anything like that. So he has no evidence of pulmonary edema at that time. He also notices in the extremities that there is no edema. So that means his legs don't show any edema. So he's not getting peripheral vascular disease. So from this, he's cardiac stable.

Then if you go to Higgs page 0020, which is a physical exam which is also on November 5, 2020, it's a lot more detailed. In the physical exam, it states that he denies any chest pain, palpitations, or shortness of breath. So again he does not have any of these symptoms of congestive heart failure.

And then if we -- I'll refer you to Higgs page 26, which is another detailed physical exam that was performed on September 11. Again, if you go to Higgs page 28, the chest is equal expansion, clear to auscultation. So, again, they're not hearing anything with the stethoscope in his lungs. His heart appears to have the systolic murmur that he always had. And then his assessment is basically the same: unspecified asthma, cardiac murmurs.

And finally, if you go to Higgs 106, it is his echo-cardiogram that was performed on May 26, 2020. Within the results it shows the left ventricle is normal in size. He has an ejection fraction of 60 to 65 percent, which anything over 55 percent or higher is considered normal.

He does have a borderline dilation of his left atrium,

but there's no significance placed on that. He does not have any suggestions of pulmonary hypertension, so his lungs are functioning normally. And they basically say that his -- their conclusion is the left ventricle is normal size. His left ventricular function is normal.

And then from all of those, I would say that he was -- prior to his diagnosis, his heart was functioning normally. I did have a mitral valve prolapse and regurgitation, but it really hadn't affected his heart to the point that he was in congestive heart failure and that he continued to be exercise-tolerant and not showing any fatigue or any other symptoms of congestive heart failure.

Q. Thank you. So then is your opinion -- what is your opinion, then, given the heart condition that you see from his medical record, whether the heart condition would cause him to experience acute pulmonary edema while he's sensate?

A. My opinion is it would not cause him to have any significant pulmonary edema prior to going unconscious with the pentobarbital, that his heart condition would not have any effect on him.

Q. So if I can focus you then on the period after his COVID-19 diagnosis -- again, that was December 16, 2020. What do Mr. Higgs' records indicate about his heart condition?

A. So I would refer you to Higgs page 6, which is dated December 30, 2020, at 9:40 a.m. He has a physical exam here.

He does complain of difficulty catching his breath but denies any cough, painful breathing, or bloody breathing. He also denied shortness of breath upon examination.

In his general examination under pulmonary, the inspection is within normal limits, and it's again clear to auscultation. So when they put the stethoscope on his chest, they don't hear any crackles, rhonchi, wheezing, or pleural rub, meaning he doesn't have pneumonia or pulmonary edema, among other things.

Also, he has vitals taken. His respiratory rate at that time, which is on page 5, was 18, which is -- normal is between 12 and 20. And his blood pulse is 66. So that's again another normal finding.

They also performed an x-ray, which the results are listed on Higgs page 99, which showed that he has a stable chest examination without acute cardiopulmonary process, clear lungs except for an unchanged right apical reticular nodular density, which is basically kind of a calcified area or a nodule on his lungs. It could be from a number of things, but it wouldn't affect his lung function.

Also in the x-ray it states that he has normal cardiomediastinal contours for his age, his age being 48, and so that means his heart's not enlarged and they aren't seeing any other signs that there could be a problem.

So, again, there's no evidence of a pulmonary edema, there's no evidence of congestive heart failure, even after

the COVID diagnosis.

Q. And how would you compare Mr. Higgs' heart condition to the patient in the Potts study?

A. The patient in the Potts study had gotten to the point where he was in congestive heart failure and was needing to have the cardiac surgery to correct it, or he was going to probably expire.

So comparing the two, Mr. Higgs is stable. His heart's not enlarged, he's not showing any signs of congestive heart failure, whereas the patient had significant chances of congestive heart failure. So I think the two of them -- the patient in the Potts report is in far worse shape than Mr. Higgs.

Q. And, Dr. Crowns, what qualifies you to offer an opinion about Mr. Higgs' heart condition?

A. I am a forensic pathologist. I've been practicing forensic pathology for 20 years. Part of my practice is we evaluate medical records and go through what the symptoms and signs people were having prior to death, and then we compare that back to what we find at autopsy and then determine cause and manner of death. I have done thousands of autopsies on individuals with heart disease similar to Mr. Higgs and similar to the people -- the person in the Potts study.

Q. Thank you. And so I just want to refer, then, to the reply brief. You don't have to look at it. I'll just read it to you

for the Court's reference, the reply brief page 15. That's the third full paragraph in the middle of that page.

And I quote: "Dr. Crowns is a pathologist rather than an epidemiologist. He is not qualified to offer an opinion on the pharmacological effect of pentobarbital on the brain, as Drs. Van Norman and Edgar have explained."

Do you agree with that statement?

A. I don't agree with that statement. First off, epidemiologists aren't necessarily even medical doctors. They can often be people with master's degrees in public health. They don't often see patients. They don't deal with the actual -- they don't necessarily touch patients. They usually just analyze data.

I, on the other hand, do autopsies on a daily basis, review medical records, and have done also thousands of cases on people dying from the various drugs, drug overdoses, including -- I have had a few cases of people that have overdosed with pentobarbital. So I do feel that I am qualified to review the information at hand and give an opinion on what the effects may be.

Q. And one final question that's just a clarification about -- we talked earlier about the term "flash pulmonary edema." Does it mean -- what does it mean to -- sorry. It sounds like it happens immediately. What is your understanding of the term "flash pulmonary edema"?

A. So, again, my understanding of "flash pulmonary edema" is that it occurs in a period of time, usually within minutes if

not instantaneous. I really feel nothing really is instantaneous except for a few conditions in the body, like pulmonary emboli that block the vasculature and causes sudden heart stoppage, or a stroke in the brainstem that kills you instantly.

But there are very few things that happen instantaneously. And I feel that from everything that I've been able to find that acute pulmonary edema, also known as flash pulmonary edema, takes several minutes to set in.

Q. Thank you, Dr. Crowns. I don't have any further questions.

THE COURT: Okay. Mr. Kursman?

CROSS-EXAMINATION

BY MR. KURSMAN:

Q. Good morning, Dr. Crowns.

A. Good morning.

Q. You're a medical examiner. Right?

A. That's correct.

Q. And that has been your job since you graduated medical school?

A. That's correct.

Q. So that's been your job for the past 20 years or so?

A. Yes.

Q. And have you also worked as a forensic pathologist for a bit, too?

A. So a medical examiner and a forensic pathologist are basically the same thing, and you're just saying it differently.

Forensic pathologists are medical examiners, but also forensic pathologists are coroners' pathologists that work for coroners' offices and then answer to a coroner, which I've also done that as well.

Q. So for the past 20 years or so, you haven't practiced medicine on living patients. Right?

A. I have practiced medicine on decedents, that is correct, but I still review their medical records prior to their death.

Q. But to my question, you don't practice medicine on living patients. Am I right?

A. That's correct.

Q. And you're not a pulmonologist. Correct?

A. No.

Q. And you're certainly not an anesthesiologist. Correct?

A. I am not.

Q. And you don't have any specialized training in anesthesiology. Right?

A. I do not.

Q. And you don't have any special training in pharmacology either, do you?

A. Beyond my background in chemistry that I had several classes in medicinal chemistry, no, I'm not a pharmacologist.

Q. And are you aware of the four main categories of anesthesia?

A. No.

Q. You're not. Okay. Well, are you aware that pentobarbital

is not used clinically as a sole induction agent for general anesthesia?

A. I am not.

Q. Okay. And in an operating procedure, you wouldn't be the doctor that is used to determine anesthetic depth. Isn't that right?

A. We have done cases in which individuals died under anesthesia. I have reviewed those, yes.

Q. No, no.

THE COURT: Mr. Kursman, I want to interrupt you for a minute. We've heard from Dr. Crowns before on cross-examination, and I'm really going to ask you to focus your questioning on Mr. Higgs' as-applied challenge.

MR. KURSMAN: I apologize, Your Honor. Ms. Lin just had Dr. Crowns go in depth into his medical record, so I'm just attempting to establish what his qualifications for this are.

THE COURT: Okay. All right. But we don't have all day. Thank you. Go ahead.

BY MR. KURSMAN:

Q. So let me repeat my question: In an operating procedure, in a procedure where they're operating on a patient, you wouldn't be the doctor that's used to determine anesthetic depth. Isn't that right?

A. I'm not sure what you mean by anesthetic death, because

I will be the individual who reviews the case if an individual dies while on the operating table while getting anesthesia. We've seen that in dental patients as well as operations. It's considered medical misadventure, and they will be brought into the office for evaluation. I'm not sure what you're saying.

Q. Maybe my question's confusing. I apologize. If a patient goes in for surgery and they go under anesthesia, you're not the doctor that determines how deep under anesthesia they are, are you?

A. I'm not in an operating room helping with the -- how far they are under anesthesia. But if they die from their anesthesia, I am the doctor that evaluates that death.

Q. Right. But at that point, they're dead. Right?

A. Yes.

Q. Right. And the reason you're not the doctor who determines the level of anesthetic depth that they're under is because you don't have special training in anesthesiology.

MS. LIN: Objection, Your Honor. This is mischaracterizing the witness's testimony. Also, we didn't say anything about Dr. Crowns' expertise in anesthesia. He's not an anesthesiologist.

THE COURT: I think it's fair cross-examination. But I'm aware that Dr. Crowns is not an anesthesiologist, Mr. Kursman. But as I said, Dr. Crowns was previously cross-examined as to his qualifications, and I really -- and

I understand that Ms. Lin went into it, but that's -- you know. That's not the purpose of this hearing today, and you didn't object when she was going into his qualifications. So focus your questioning on Mr. Higgs' as-applied challenge and as to Dr. Crowns' declaration and testimony regarding Mr. Higgs.

MR. KURSMAN: Your Honor, if I could just respond, the reason that this is relevant is that Dr. Crowns just testified on direct examination that Mr. Higgs and Mr. Johnson would be unconscious at the time that they would have suffered from pulmonary edema. So I need to establish that he doesn't have that specialty. He just told the Court that he doesn't even know the different levels of anesthetic depth.

THE COURT: I understand. But that issue as to whether pulmonary edema occurs when a plaintiff is unconscious or not has been litigated. I've heard testimony from experts, including Dr. Crowns, on that particular issue, and it doesn't go to Mr. Higgs' as-applied challenge.

I've heard testimony with regard to Dr. Crowns' expertise, and I can certainly draw conclusions as to whether he is qualified -- or whether he has sufficient experience to make those statements but -- and again, you didn't object when Ms. Lin was directing him on those qualifications.

But I'm not going to spend all day challenging Dr. Crowns' professional qualifications. We've been through this, especially on the substance of the onset of flash pulmonary edema. I spent

many hours on this before.

MR. KURSMAN: And I apologize, Your Honor. I'll be done quickly. I'm just trying to rebut Ms. Lin's direct examination. So I apologize.

BY MR. KURSMAN:

Q. And you know -- I apologize. Let me get back to where I was. And do you know how anesthesiologists determine what category of anesthesia a patient is under?

MS. LIN: Objection.

THE WITNESS: No.

THE COURT: Overruled.

BY MR. KURSMAN:

Q. And you know that it's not just simply looking at the patient and determining that they are sleeping; correct?

A. I know they have criteria that they go through, but I couldn't go through all the criteria that they use.

Q. Okay. Well, let me ask you this: Do you know the pH level of pentobarbital?

A. I know it's alkaline, but I don't know the exact pH.

Q. And when you say it's alkaline, that means it's considered caustic. Right?

A. Alkaline can be caustic at certain levels, yes.

Q. Well, do you know that pentobarbital has such a high pH level that it's considered caustic?

MS. LIN: Objection, Your Honor. This is not within

the scope of --

THE COURT: Mr. Kursman, there's no jury here. This is not a trial. There is no jury here. I have heard evidence on this subject for hours. You have an as-applied challenge for your client. I suggest you get to your client.

MR. KURSMAN: Your Honor --

THE COURT: I've given you some leeway here, but again, there's no jury present. I have heard testimony on this issue from other experts as well as Dr. Crowns. You have a particular client with particular health conditions, and I am considering those conditions on this motion.

MR. KURSMAN: Your Honor --

THE COURT: What I'm saying is please get to the meat of the matter.

MR. KURSMAN: Your Honor, the reason that the pH level being caustic is relevant is that is what -- that is what the conditions exacerbate. The pentobarbital is caustic, so it --

THE COURT: He said it was. He agreed with you. He agreed with you.

MR. KURSMAN: Okay.

MS. LIN: And, Your Honor, I would just note that he didn't testify, even in his declarations, anything about the pH level or --

THE COURT: I understand, Ms. Lin.

MS. LIN: -- topic.

THE COURT: I understand. I allowed the question. The point has been made. We can move on.

MR. KURSMAN: Sure.

BY MR. KURSMAN:

Q. Are you aware that an overdose with pentobarbital can cause pulmonary edema?

A. Yes.

MR. KURSMAN: I have nothing further, Your Honor.

THE COURT: Okay.

Any redirect?

MS. LIN: No, Your Honor.

THE COURT: All right. If there are no further questions, then Dr. Crowns, you're excused. Thank you for your time.

THE WITNESS: Thank you, Your Honor. And I'd just like to say Happy New Year.

THE COURT: Happy New Year to you, too.

Okay, everyone. We will reconvene tomorrow morning with the remaining witnesses. I will take Ms. Lin's motion to strike under advisement, and I will rule on it as soon as I'm able to thoroughly consider it. Any other housekeeping matters before we begin tomorrow?

MR. KURSMAN: Just one, Your Honor.

THE COURT: Yes, Mr. Kursman.

MR. KURSMAN: I think you advised me to file the

exhibits on the record as well. I don't intend to enter the exhibits into evidence. I'm just going to be using them --

THE COURT: Okay. All right.

MR. KURSMAN: So if I could just email that, that would be fine if that's okay with the Court.

THE COURT: Well, here's the thing. How you make your record is your decision. But if they're not filed, they're not in the record. And for appellate purposes, I mean -- it's up to you. I'm not going to require that you file them.

MR. KURSMAN: Okay.

THE COURT: Okay? All right.

MR. KURSMAN: Okay. Thank you, Your Honor.

THE COURT: Sure. All right. So we'll reconvene tomorrow. Thank you, everyone.

THE DEPUTY CLERK: Judge, what time tomorrow? I'm sorry.

THE COURT: Yes. Let's just double-check, because we do have...

MS. LIN: 9 a.m.

THE COURT: 9 a.m. Okay.

THE DEPUTY CLERK: Thank you.

THE COURT: Thank you all.

(Proceedings adjourned at 12:40 p.m.)

CERTIFICATE *

I, BRYAN A. WAYNE, Official Court Reporter, certify that the foregoing pages are a correct transcript from the record of proceedings in the above-entitled matter.

/s/ Bryan A. Wayne
Bryan A. Wayne

* PLEASE NOTE:

This hearing was taken via telephone conference in compliance with U.S. District Court Standing Order 20-19 during the COVID-19 pandemic. Transcript accuracy may be affected by limitations associated with use of electronic technology, including but not limited to any sound distortions and/or audio interferences.

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

IN THE MATTER OF THE	**.**	**MC No. 19-0145 (TSC)**
FEDERAL BUREAU OF PRISONS'	**.**	**Washington, D.C.**
EXECUTION PROTOCOL CASES.	**.**	**Tuesday, January 5, 2021**
. . . . . .		**9:13 A.M.**

DAY 2
TRANSCRIPT OF MOTION HEARING
BEFORE THE HONORABLE TANYA S. CHUTKAN
UNITED STATES DISTRICT JUDGE

APPEARANCES:

For Plaintiff Dustin Higgs:	**ALEXANDER L. KURSMAN, ESQ.** **DEVON E. PORTER, ESQ.** **Federal Community Defender/EDPA** **601 Walnut Street** **Suite 545 West** **Philadelphia, PA 19106** **(215) 928-0520**
For Plaintiff Corey Johnson:	**ALEXANDER C. DRYLEWSKI, ESQ.** **Skadden Arps Slate Meagher & Flom** **1440 New York Avenue NW** **Washington, DC 20005** **(202) 371-7000**
For Defendant:	**JEAN LIN, ESQ.** **JONATHAN D. KOSSAK, ESQ.** **U.S. Department of Justice** **1100 L Street NW** **Washington, DC 20005** **(202) 514-3716** **JOHNNY H. WALKER III, AUSA** **U.S. Attorney's Office** **Civil Division** **555 4th Street NW** **Washington, DC 20530** **(202) 252-2575**
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C O N T E N T S

WITNESS TESTIMONY

P R O C E E D I N G S

THE DEPUTY CLERK: Your Honor, we have Miscellaneous Action 19-145, In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases. I ask that counsel identify themselves, starting with the plaintiffs, please, and the party you represent.

MR. KURSMAN: Good morning, Your Honor.

This is Alex Kursman for Dustin Higgs, and I'm here with my co-counsel, Devon Porter.

THE COURT: Good morning.

MR. DRYLEWSKI: Good morning, Your Honor. This is Alex Drylewski from Skadden Arps. We serve as pro bono counsel to plaintiff Corey Johnson.

THE COURT: Okay. Thank you.

MS. LIN: Good morning. This is Jean Lin on behalf of the government. Good morning, Your Honor.

THE COURT: Good morning.

MS. LIN: And with me are -- and I have co-counsel Jonathan Kossak and Johnny Walker, also for the government.

THE COURT: All right. Thank you.

Good morning, everyone. We are here for an evidentiary hearing in this matter. This is going to be a relatively long hearing. I've allotted two and a half hours to each side. This is a hearing like any other hearing, and so we're being -- it's being transcribed by a court reporter. But since I can't

see him to get visual cues for when he needs a break, Mr. Wayne, can you let Mr. Bradley know, or me know -- you can just break in if you want if you need a break.

Now, I want to remind everybody that -- I think this is our third evidentiary hearing in this case; and I've read previous declarations of some of these witnesses, and I've read the declarations of the additional witnesses. So we're really trying to -- this is an as-applied challenge, so I'm really asking you to focus your questioning on the issues relevant to this particular as-applied challenge.

Before we begin -- well, does anybody have any preliminary matters? I was going to get to Ms. Lin's motion to strike.

MR. KURSMAN: I do, Your Honor. This is Alex Kursman representing Dustin Higgs.

THE COURT: Yes, Mr. Kursman.

MR. KURSMAN: Last night I emailed the Court to let you know about x-rays that we had just received --

THE COURT: Yes. I got them.

MR. KURSMAN: Okay, great. And our expert would be opining on those x-rays, and I provided for the Court and government's counsel the opinions of our expert.

THE COURT: The exhibit.

MR. KURSMAN: The exhibit and that our expert was opining that the exhibit showed Mr. Higgs had lung damage which was consistent with COVID pneumonia.

THE COURT: Okay.

MR. KURSMAN: At 11 p.m. last night the government responded, saying they would now call Dr. Locher.

THE COURT: And my understanding is they don't intend to call Dr. Smiledge. Is that correct?

MR. KURSMAN: Ms. Smiledge is not a doctor.

THE COURT: Ms. Smiledge. Oh, she's not. She's a registrar of records or something?

MR. KURSMAN: Right. And I notified Ms. Lin --

THE COURT: Administrator of health records, yes.

MR. KURSMAN: Exactly. And I notified Ms. Lin this morning that, to streamline the process, we will no longer cross-examine her either.

THE COURT: Okay. Okay.

MR. KURSMAN: But back to Dr. Locher, at eleven o'clock last night, they emailed the Court -- the government emailed the Court and opposing counsel, being us, and let us know that they planned to call Dr. Locher for direct examination.

To the extent that they plan to elicit testimony on his opinion of Mr. Higgs' December 30, 2020, x-rays, which they've had possession of since December 30, I would object as to a clear violation of Federal Rule of Evidence 26(a)(2)(B)(i), which requires expert opinions to be disclosed before testifying.

Here the government has never informed us that Dr. Locher would be offering his opinions on the x-rays, and they have

never told us what these opinions are. So it puts me at a huge disadvantage on cross-examining these experts. First, I have no idea what the opinions are until he testifies, and second, I have not been able to consult with my experts about his opinion, because I don't know what they are.

THE COURT: All right. Ms. Lin?

MS. LIN: Your Honor, first of all, we apologize for not being able to get the x-ray films sooner to plaintiffs' expert, Dr. Michael Stephen. We had --

THE COURT: Well, let me stop you for a minute, Ms. Lin. Why is it that you've had these x-rays for five days, six days, and didn't previously disclose them?

MS. LIN: So when we produced the medical records on Thursday, the BOP's medical records system typically does not include x-ray films. So when Mr. Kursman asked for the x-ray films, we tried to get it expeditiously. And once we got the films, we weren't able to email it the way that Mr. Kursman was able to do. So, again, our apologies there. So what happened --

THE COURT: No, let me stop you. But did he know of their existence -- when did you inform Mr. Kursman that you had these x-rays?

MS. LIN: So in the medical record itself, there's a final report from the radiologist, and that's Higgs 0099. That's the report of the radiologist's reading of the x-ray films.

THE COURT: So you're saying that was the notification

you gave him, that there was a mention in the medical records as to the existence of an x-ray film? You didn't tell them there are x-rays; we're trying to get them to you?

MS. LIN: So at some point we -- I think that both parties knew about the x-ray films. You know, the timeline is a little bit unclear. The x-ray films were only conducted December 30.

THE COURT: Right. That's almost a week ago.

MR. WALKER: Your Honor, this is Johnny Walk --

THE COURT: Wait, wait, wait. We're going to have one person at a time. Hold on, Mr. Kursman. I'll get you. Ms. Lin.

MS. LIN: So maybe my co-counsel, Johnny Walker, can walk through the sequence of events because we were trying over the weekend. The one point I'll make is that our doctor, Dr. Locher, similarly did not see those until last night when he got home, and when we forwarded the email that plaintiffs' counsel --

THE COURT: I understand that. But, Ms. Lin, I want you to respond to Mr. Kursman's contention, which appears to have some merit, which is -- I mean, this is not going to be a hearing by ambush. And I understand the last-minute nature. But the whole focus of this as-applied challenge really centers on Mr. Higgs' lung function and his cardiac function and the effects of how pentobarbital might aggravate his health conditions. So x-rays of his lungs would certainly be very

germane to this issue.

And just putting aside for the moment why you didn't get the x-rays to counsel for Mr. Higgs until such a late time, how was Mr. Kursman supposed to respond to expert testimony? Even if I grant you that there was a good reason, and I haven't found that there's a good reason, but even if I do find that there's a good reason for the late notification and late disclosure of these records, Mr. Kursman is hamstrung here.

He can't properly cross-examine your expert. He doesn't know what he's going to say. He's learning about this. This is not a fact witness. He's learning about this expert testimony for the first time today, and he is in a position where he hasn't been able to find an expert to counter the testimony or to even research whether the testimony is valid.

Can you tell me why he's not prejudiced?

MS. LIN: So, Your Honor, in both Dr. Locher's declaration as well as in our briefing, we relied on that radiologist's report talking about the chest x-ray results. And so our Dr. Locher also relied on the test x-ray results.

THE COURT: But he didn't look at the actual x-rays. Right?

MS. LIN: Correct. And so last night he was relying on the radiologist's final report on the chest x-ray. So the testimony is only in anticipation of the fact that now plaintiffs said that they are calling Dr. Stephen, a

pulmonologist, who's going to talk about the x-ray films.

And so because Dr. Locher does have to go very quickly because he has patients, he has attempted to in the -- so this is in anticipation of we won't be able to call him back, and so for him to talk about whether his views are consistent with the radiologist's report.

THE COURT: But my question to you, Ms. Lin, is why isn't Mr. Higgs prejudiced by this? What you're saying is, well, Dr. Locher's testimony was originally based on his review of the report of the x-ray, and now last night he actually saw the x-rays. But he's going to talk about them. And how is Mr. Kursman not prejudiced by not being able to rebut this late testimony, which is in no way his fault?

MS. LIN: Yes. I understand, Your Honor. But Dr. Stephen is on the phone, and I understand he'll be listening to Dr. Locher's testimony about the films. Again, the delta's very small. It's whether this film is consistent with what the radiologist opined, who is actually the authoritative person, and so it's just the films about whether these films show --

THE COURT: That may be your view on it, Ms. Lin. I suspect Mr. Kursman has a distinctly different view on it.

MS. LIN: And we're --

THE COURT: Go on.

MS. LIN: May I just finish it, Your Honor?

THE COURT: Yes.

MS. LIN: We are in the same position, because we will also not be able to know what Dr. Michael Stephen is going to say.

THE COURT: Except Dr. Stephen is being permitted to testify to respond to Dr. Locher's -- I mean this is not an endless game of tennis here. Mr. Kursman's position is that, having not seen the actual x-rays themselves -- I mean, people can opine on a report of an x-ray, but seeing an actual x-ray is a very different matter. And x-rays themselves provide much more information than the report of an x-ray.

Mr. Kursman's position is he is prejudiced by not being able to respond to Dr. Locher's testimony regarding the x-rays themselves, and he doesn't even know what he's going to say.

So let me ask you, Mr. Kursman --

MS. LIN: So --

THE COURT: -- what is -- go ahead, Ms. Lin.

MS. LIN: Yes. So, Your Honor, if you exclude Dr. Locher from testifying about the x-ray, then we would submit that Dr. Stephen similarly should not be testifying about the x-ray.

THE COURT: Well, I --

MS. LIN: He does not have the x-rays. Because, again, the x-ray is -- both experts have reviewed them, and I know this is an expedited matter, but we -- it was not like the government was trying to hold on to this evidence.

THE COURT: Well, here's the problem, Ms. Lin, and I don't know what Mr. Kursman is going to respond; but I can see that if the x-ray does indicate that Mr. Higgs has problematic lung function that would aggravate -- in other words, that promotes his argument. All right? Then he should be able to use it. And the x-rays' being provided at such a late date hinders his ability to use the x-rays to support his contention.

But let me hear, Mr. Kursman -- I think I've articulated some of your prejudice. Let me hear what you're asking for.

MR. WALKER: Your Honor, I'm sorry. This is Johnny Walker. I really do have to jump in because I'm the one who coordinated the delivery of the x-rays, and I think I can address why they were delivered when they were --

THE COURT: Okay.

MR. WALKER: -- if you would permit me to do so.

THE COURT: Yes.

MR. WALKER: The x-rays were taken on December 30, and on December 31 counsel for plaintiffs requested the x-rays. At the time, counsel for defendants themselves, we did not have the x-ray images. The only thing contained in the Bureau of Prisons' actual medical records that are stored on a system was the radiology report that we provided --

THE COURT: Who had the x-rays themselves?

MR. WALKER: They were in a separate storage area on a disk with a separate sort of program that is required to read

them.

THE COURT: In the possession of the Bureau of Prisons?

MR. WALKER: Yes, ma'am. And as soon as plaintiffs asked for them, the very day we began looking into how to provide those x-rays. We were unable to pull them directly off the disk because, as I say, they are in files that have to be read by a special program. We spent much of the day over the weekend trying to figure out a way to convert those into images that could be delivered easily and electronically to the plaintiffs.

Ultimately, the best that we were able to do is to go in and make copies of the disk. And so a Bureau of Prisons employee went into the office, spent five hours on New Year's day making copies of these disks so that they could be immediately FedExed overnight simultaneously to both plaintiffs' experts and to our experts. And both of those experts received the disks -- we couldn't do it on New Year's day.

We wanted to FedEx them on New Year's day, but FedEx was unfortunately closed that day. They were FedExed the very next day. We understand that they arrived simultaneously last night at both plaintiffs' expert and our expert. So BOP has really moved as expeditiously as possible to provide these x-rays from the December 30th x-ray as expeditiously as it possibly can.

THE COURT: All right. Thank you, Mr. Walker. Nobody mentioned this when we were on our call yesterday.

As you know, I really don't like being informed about these kinds of things at the last minute. I understand that everybody got the x-rays last night, but I didn't even know that there was even an issue regarding the x-rays yesterday. But we're here now. Mr. Kursman, what are -- I mean I think I understand your position about how you're prejudiced. What are you asking for?

MR. KURSMAN: So, Your Honor, first I just want to make clear for the record, I was not the person who interrupted while Ms. Lin was speaking. That was Mr. Walker. So I just wanted to make that clear for the record.

THE COURT: Oh, thank you. Yes.

MR. KURSMAN: What I'm asking for is, one, because the government --

THE COURT: I'm sorry, Mr. Kursman. I'm going to interrupt you. I just want to remind everyone, including you, Mr. Walker -- well, first of all, not to interrupt, and second, to say who you are before you speak. I realize I may be getting used to all your voices, and maybe the court reporter is, but we do have a transcript; we do have a record. We're not in court, so I can't see. So please say who you are, and please try not to interrupt. Go ahead, Mr. Kursman.

MR. KURSMAN: So the government had these records in their possession since December 30. They say they didn't have the x-rays, but the BOP had the x-rays. And of course we know that if the BOP has the x-rays, they have the x-rays because

they have access to the BOP's files, as we've seen over and over in this litigation. But more importantly, more importantly, is that right when we got these x-rays -- and we asked for these x-rays day after day after day, right when we found out the x-rays existed.

THE COURT: When did you learn that the x-rays existed?

MR. KURSMAN: Sure. So on December 31 we learned that Mr. Higgs got x-rays on December 30. So Ms. Porter, my co-counsel, immediately emailed the government and asked for a copy of those x-rays. The government informed us that the x-rays would be included with their responsive filings that were filed that night on New Year's Eve.

The responsive filing came in. We read it, we went through the entire records, and the x-rays were not there. For that night, around 10 p.m., Ms. Porter again emailed the government to inform them the x-rays weren't there and they wanted them. The government responded that they thought they were there; Ms. Porter replied they are not, and we would like them.

On Saturday, which is January 2 -- so now step forward about 36 hours -- the government notified us that they had the x-rays, but they had technical difficulties and needed to FedEx them overnight.

Ms. Porter gave them the address of our expert, Dr. Stephen, so they could be FedExed right to Dr. Stephen's

home. Last night, when Dr. Stephen returned from work at 6 p.m., the x-rays were there. He reviewed them. He immediately called us. We had a phone call with him. And I immediately informed the Court and opposing counsel of Dr. Stephen's opinions about those x-rays so that they could consult with their expert. As I told the Court and counsel, we'd be calling Dr. Stephen to offer that opinion.

At 11 p.m. last night, the government responded they would be calling Dr. Locher. They did not say that they'd be calling him to offer an opinion on the x-rays, and they did not even tell us what those opinions would be.

So now we're here this morning and they're planning to elicit direct examination from Dr. Locher about his opinions on these x-rays, and I have really no way to cross-examine him on this because, one, I don't know what those opinions are because they never informed us of that until right now; two, I haven't been able to consult with my expert about this opinion. And these are the type of things that Federal Rule of Evidence 26(a)(2)(B)(i) was designed to prevent.

THE COURT: Okay. Both parties have set forth their positions. And based on what I've heard, I'm not finding that there was any bad faith. I agree with you, Mr. Kursman, that technically the x-rays were in the possession of the defendant; they were in the possession of the Bureau of Prisons. But based on what I have heard from Ms. Lin and Mr. Walker, and it's been

corroborated by you, is that once the government was told that the x-rays were not in the materials provided to the defense, they took steps to get them.

Given that it was a holiday weekend and the x-rays seem to have been kept in a manner that was difficult to access, it appears to me -- I have no reason not to believe their proffer that they got the x-rays as soon as they could, FedExed them to your expert, who received them last night. They didn't get it overnight. It took, you know, 48 hours to arrive.

But I can't find that there's been any bad faith on the part of the government, although I agree with you that the x-rays were clearly in their possession. But it appears that once they were notified that the x-rays were not included, they took steps to send them to you as quickly as they could, unless you have some information or proffer that that was not the case.

Now, the problem is, as I learned when I was a trial lawyer, was the prejudice. And you do articulate the purpose of the Federal Rules of Evidence; this is expert testimony and it shouldn't be a hearing by ambush. The problem is this is all sort of -- none of this is taking place in the manner contemplated by the Federal Rules of Evidence for an orderly presentation of the evidence. We're dealing with hearings close to execution dates and so on.

So having found that there was no bad faith on the part of the government, I agree with you that you are hamstrung, and

I don't understand why the government did not at least, last night, tell you what their witness would be testifying to so that you could consult with your witness or find another witness.

Ms. Lin, is there a reason why you didn't inform Mr. Kursman or -- is it -- I'm sorry. Is Devon Porter a woman or a male?

MR. KURSMAN: It's Ms. Porter, Your Honor.

THE COURT: Ms. Porter. I should have remembered that by now -- Ms. Porter what your witness, Dr. Locher, would have testified to, because he is hamstrung. You're not supposed to be hearing expert testimony and not knowing what that is going to be. It's not an eyewitness.

MS. LIN: Your Honor, again, I mean I'm sorry that our email was quite cryptic. We said in light of -- what we meant and which I think our email says, and I'm trying to look up the email. In light of the fact that -- in light of the emails Mr. Kursman sent, we now intend to call Dr. Locher. The point of that was that because Dr. Stephen is going to talk about the x-rays, and then so the intention to say, okay, our Dr. Locher is similarly, in light of that fact, Dr. Locher is now going to -- we're going to do direct testimony.

THE COURT: Well, you didn't tell him what Dr. Locher was going to be testifying to, what the substance of Dr. Locher's testimony would be.

MS. LIN: And I -- yes.

THE COURT: Can you make a proffer now?

MS. LIN: He's going -- yes. The email says that Dr. Stephen was going to say that there's lung damage based on the x-rays. And so we proffer that Dr. Locher is going to testify that the x-ray does not show such lung damage.

THE COURT: Why didn't you tell Mr. Kursman that last night?

MR. WALKER: Your Honor, I'm sorry. This is Johnny Walker. I wrote the email. It was my understanding that given the fact that it was in response to Mr. Kursman's email saying that Mr. Stephen would testify about the contents of the medical records, I did say in light of this we will put on Dr. Locher to testify. I thought it was quite clear from that that Dr. Locher would be testifying about the x-rays in rebuttal to Dr. Stephen.

THE COURT: Well, given that there's no declaration from Dr. Locher on that point, it seems to me, Mr. Walker, that you should have been more specific. And we wouldn't be here -- I mean, granted, it's eleven o'clock at night. But at least then Mr. Kursman could consult with his expert about what he anticipated. I'll grant you the inference is Dr. Locher would be testifying to rebut the defense expert, but -- okay.

Mr. Kursman, again, I'm not finding bad faith here, but I am concerned, given the very serious nature of this litigation and the fact that we're trying to have as thorough a hearing as we can, that things are being disclosed at the last minute.

Mr. Kursman, it appears you have -- again, and I want you to focus on your prejudice and a proposed remedy. You have an expert who you're prepared to put on to testify about the alleged lung damage from the x-rays. Is that correct?

MR. KURSMAN: That's correct, Your Honor.

THE COURT: That's Dr. Stephen?

MR. KURSMAN: That's Dr. Stephen.

THE COURT: And given the government's proffer as to what Dr. Locher will be -- I guess he will be testifying about what Dr. Stephen says with regard to what the x-rays show with regard to lung damage.

How are you prejudiced if Dr. Stephen is testifying to the same issue that Dr. Locher will be testifying to? They're both going to say -- one is going to say the x-ray doesn't show the kind of lung damage we think would cause a problem, and the other will say, yes, it does. I mean I'm not -- obviously, it's not putting a fine point on it. Then how are you prejudiced? How would you have proceeded differently had you had this information earlier?

MR. KURSMAN: The problem, Your Honor, is that I don't know because I haven't been able to consult with my expert about these opinions, and I'm not somebody who can look at --

THE COURT: Well, Dr. Stephen -- I'm sorry. I don't mean to interrupt you, but you have retained Dr. Stephen and intend to call Dr. Stephen to talk about the x-rays. Right?

Isn't he going to talk about that?

MR. KURSMAN: That's right.

THE COURT: Okay. So what else would you need?

MR. KURSMAN: Could I propose this, which may be reasonable to Your Honor?

THE COURT: Yes. Go ahead.

MR. KURSMAN: At the very least, after Dr. Locher testifies, if Your Honor allows him to testify about the results of the x-rays, after his testimony concludes, after cross concludes, could we just take a five or so minute break so that I could discuss his testimony with Dr. Stephen before I call Dr. Stephen for direct examination?

THE COURT: Absolutely. Absolutely. That seems more than fair. And I actually was going to propose that. What I'm inclined to do -- because again this is a -- you know, I want to give the parties their full measure of due process, and I don't want evidence to not be brought forward if it helps provide me with information on difficult decisions I have to make.

So what I'm proposing is that I hear from the expert, and then given the fact that you did receive these x-rays late last night, that then at the conclusion of the presentation of the evidence, I can give you some time and you can then proffer to me, you know, how you believe you're prejudiced, what you would have wanted to do, what you would like to do and so on, and make your record. But I would really like to get started with the

hearing. Is that agreeable to everyone?

MR. KURSMAN: This is Alex Kursman. That's agreeable to me, Your Honor.

THE COURT: Ms. Lin?

MS. LIN: Yes, Your Honor.

THE COURT: All right. So one more housekeeping matter. With regard to with Ms. Lin's motion to strike, yesterday at our hearing with Dr. Crowns, defendants orally moved to strike the declaration of Dr. Mitchell Glass, which is at ECF No. 383-2. I have reviewed the declaration of Dr. Glass, and I will grant in part and deny in part defendant's motion.

In his declaration, Dr. Glass offers four opinions. The first one addresses Mr. Higgs' aspirin-exacerbated respiratory disease, AERD, a condition that was not raised in any iteration of Mr. Higgs' as-applied challenge thus far.

Because this opinion raises a new claim which certainly could have been raised earlier, I will grant the motion to strike as to that opinion, Opinion No. 1 of Dr. Glass's declaration. Accordingly, paragraphs 4 through 7 of Dr. Glass's declaration at ECF No. 383-2 will be stricken from the record.

The remaining opinions presented by Dr. Glass are given in response to defendant's opposition brief and are therefore relevant to the as-applied challenges at hand. Opinions 2 and 3 discuss the relationship between pentobarbital and asthma, and Opinion 4 deals with COVID-19. My allowing opinions 2

through 4 of the Glass declaration is not overly prejudicial to the government, because if these declarations are truly cumulative of what is already before the Court as defendants contend, they will offer little value.

To the extent that defendants cast doubt on Dr. Glass's qualifications, I have a copy of Dr. Glass's CV, and I can assess his experience accordingly; and the government will have the opportunity to cross-examine Dr. Glass if they're so inclined. Therefore, defendant's motion to strike is hereby denied as to opinions 2 through 4 of Dr. Glass's declaration.

All right. I've already reviewed the witness submissions. We're here for an evidentiary hearing just on the evidence submitted to me on Dustin Higgs' and Corey Johnson's motion for preliminary injunction.

Both defendants tested positive for COVID-19 in December and contend that the pentobarbital will cause them to suffer an excruciating death, in violation of the Eighth Amendment. My expectation is that, absent a compelling reason for an exception, the parties have designated one attorney to question a witness. Is that correct?

MS. LIN: Yes, Your Honor.

THE COURT: Okay. I'd like the parties to be mindful that I've heard from some of these witnesses already, and so therefore I ask that you not solicit testimony that was all already heard. Rather, we are here to discuss and it's for

me to assess how the diagnosis of COVID-19 could affect these two plaintiffs who the government plans to execute with pentobarbital.

We heard yesterday from Dr. Crowns. So today I believe you're going first, Ms. Lin?

MS. LIN: Yes, I am, Your Honor.

THE COURT: Okay. Who's your first witness?

MS. LIN: Dr. Todd Locher.

THE COURT: Okay. Go ahead.

THE DEPUTY CLERK: Mr. Locher, are you present?

THE WITNESS: I am.

THE COURT: Good morning, Dr. Locher.

This is Judge Chutkan.

THE WITNESS: Good morning, Your Honor.

THE DEPUTY CLERK: If you would mind raising your right hand?

TODD LOCHER, WITNESS FOR DEFENDANT, SWORN

DIRECT EXAMINATION

BY MS. LIN:

Q. Good morning, Dr. Locher.

A. Good morning.

Q. The declaration you executed on December 30 stated that you had practiced pulmonary and critical care medicine since 1997 and that you have cared for many critically ill and minimally symptomatic COVID-19 patients, patients with asthma,

and patients with cardiac problems. In the course of treating those patients, have you had to look at their chest x-rays?

A. Many times.

Q. And would that include x-rays of COVID-19 patients?

A. Yes.

Q. Dr. Locher, would you look at the images of the x-ray films that I emailed you last night? And for the Court's reference, we're using the images that Mr. Kursman emailed to the Court last night.

And Dr. Locher, do you see -- focusing just on the first three images, do you see on the upper right-hand corner it has the name of the patient, Dustin Higgs, and it's dated December 30, 2020?

A. Yes.

Q. So focusing just on the first three images, can you describe what these three images show?

A. These are images of the chest, two frontal views of the chest and one lateral view of the chest. There is a small shadow in the right upper lobe of chest x-ray, and that is the only abnormality seen.

Q. And can you then look at the next three images? So those three images are indicated as dated October 18, 2018. Is that right?

A. Yes.

Q. And what do those 2018 images show?

A. Once again, they are two frontal views of the chest and a lateral view of the chest. The chest x-ray showed a small shadow in the right upper lobe and is entirely unchanged from the more current film dated 30 December.

Q. So what do these six images tell you in terms of Mr. Higgs' lung condition?

A. This would tell us that he probably has a tiny little scar there in the right upper lobe that has not changed in over two years and, therefore, would be considered insignificant. There is no evidence of any acute or new problem on the more current x-ray dated 30 December 2020.

Q. And focusing on the first three images that are dated December 30, 2020, could you compare those x-rays with patients that you have treated who have been diagnosed with COVID-19?

A. Sure. Chest x-rays in patients with COVID-19, either in the intensive care unit or on the hospital ward, have normal chest x-rays with significant shadowing, usually on both sides of the chest throughout the lung.

Q. And you do not see those shadows in these three images?

A. I do not.

Q. Can I direct you to -- sorry. One more question. So is it your view that Mr. Higgs is not suffering from any lung damage or lung involvement from COVID-19?

A. There is no evidence on this chest x-ray that there is any lung involvement or damage from COVID-19.

Q. And I think you might have heard that the plaintiffs' expert has offered the view that there is increased interstitial markings on these images. What is your view about that opinion?
A. I agree with the interpreting radiologist, Dr. Yoon, that the chest x-ray has a small right upper-lobe shadow and is unchanged compared to the previous film dated in October 2018.
Q. My question is a slightly different one. So over the course of the last 40 minutes or so, we heard that plaintiffs' expert, Dr. Michael Stephen, believes that these x-rays indicate increased interstitial markings, and I'm asking whether you agree with that opinion.
A. I do not.
Q. And can I refer you, then, to the document that you were just talking about, and that's Higgs 0099 with the letterhead of StatRad, which appears to be a teleradiology company.
So can you tell me what this document is?
A. I'm sorry. You're referring me to the chest x-ray report?
Q. Yes.
A. 0009?
Q. Nine-nine.
A. Nine-nine. Sorry.
Yeah. I'm sorry for the delay. This is a chest x-ray report dated 12/30/2020 signed by Justin Yoon, MD.
Q. And what does that report tell you?
A. Well, it says here toward the bottom of the page

here, "IMPRESSION: Stable chest examination without acute cardiopulmonary process", meaning the lungs are clear, as he says here, "except for the unchanged right apical reticular nodular density," which, as I had stated, is probably a little scar and was unchanged in over two years and therefore considered insignificant.

Q. And when it says clear lungs except for those nodule, is that what you expect to see for someone who is not suffering from COVID-19 lung damage?

A. That would be expected, yes, to have an otherwise normal chest x-ray.

Q. So do you agree with Dr. Yoon's final report?

A. I do.

Q. Okay.

MS. LIN: I don't have any more questions.

THE COURT: All right. Mr. Kursman? Were you planning -- hold on.

MR. KURSMAN: Yes, Your Honor. I was on speakerphone.

THE COURT: Okay. Go ahead.

CROSS-EXAMINATION

BY MR. KURSMAN:

Q. Good morning, Dr. Locher.

A. Good morning.

Q. So let's say at this page 99, do you see where it says "History," which would be the fifth line down?

A. I'm sorry. We're looking at the chest x-ray report here?
Q. Yes. Page 99 that you were just looking at with Ms. Lin.
A. Yes, I do.
Q. And you see it says, "Chest X-Ray For Intermittent Feelings of Difficulty Catching Breath." Do you see that?
A. I do.
Q. Okay. Now, let's turn to paragraph 11 of your declaration. Do you have your declaration with you?
A. I do.
Q. Okay. So let me know when you're there.
A. I am there.
Q. Great. Do you see where it says, "Both Mr. Johnson and Mr. Higgs' experts have opined that these inmates would experience pain and suffering from pulmonary edema by virtue of their having been diagnosed with COVID. In support of their opinions, they cite studies recording abnormal CT scans in patients with COVID-19 who are asymptomatic."

Do you see that?

A. I do.
Q. And then it says, "The numbers vary widely in the literature, from 54 percent (Inui, et al.) to 94.8 percent (Meng, et al.) to 44.5 percent in a recent report by the British Institute of Radiology, showing abnormal CT scan findings in 61 out of 137 patients." Do you see that?
A. I do.

Q. So in these studies, all of these patients were asymptomatic. Right?
A. That's correct.
Q. So let's unpack that a bit. In the Inui study, 54 percent of asymptomatic patients diagnosed with COVID-19 showed abnormal CT scan findings. Correct?
A. Correct.
Q. And in the Meng et al. study, 94.8 percent of asymptomatic patients diagnosed with COVID showed abnormal CT scan findings. Right?
A. Yes.
Q. And in the British Institute of Radiology report, 54 out of 137 asymptomatic patients diagnosed with COVID showed abnormal CT scan findings. Correct?
A. Correct.
Q. And the definition of "asymptomatic" would be producing or showing no symptoms. Right?
A. Yes.
Q. And based on the medical records that you've reviewed, Mr. Higgs is not asymptomatic. Correct?
A. That is correct.
Q. He is symptomatic. Is that right?
A. He is.
Q. And that is because he has exhibited symptoms consistent with a COVID-19 diagnosis. Right?

A. Yes.
Q. And based on the medical records you reviewed, Mr. Johnson is not asymptomatic. Right?
A. Correct.
Q. He too would be considered symptomatic. Correct?
A. He would.
Q. And that is because he too exhibited symptoms consistent with a COVID-19 diagnosis. Isn't that right?
A. Yes.
Q. Okay. So let's take a look at Mr. Higgs' medical records. If you could turn back to the medical records that you were looking at with Ms. Lin, would you turn to Higgs 14.
A. I am there.
Q. Great. And you see that there is a note that on December 16, 2020, Mr. Higgs has tested positive for COVID. Do you see that?
A. Let me make sure I'm at the right page here. Sorry. It says here, COVID testing today -- I don't think it gives the result of the test, unless I'm missing something here.
Q. And I apologize. That may be -- let's go to -- hold on one second, see if I can find it. Well, let's go to page 13. Page 0013.
A. Okay.
Q. Okay. Do you see on December 18th it says that there's a chart review encounter by Smiledge, Shauna? Do you see that?

A. I do.
Q. And do you see is says, "The result was listed as symptomatic. However, the inmate had not reported symptoms. His was tested as surveillance. His test should have been charted positive, asymptomatic." Do you see that?
A. I do.
Q. And you see that they're speaking about a December 16, 2020, positive coronavirus test?
A. I do.
Q. Okay. So now let's go to Higgs 0061, and just let me know whenever you're there.
A. I am there.
Q. Okay. And do you see this is a note from December 20, 2020, and at 8:33 a.m. the report notes that Mr. Higgs had a stuffy nose, that "he got a headache last night and took his Tylenol and has a headache this AM and took Tylenol at 05:30. Patient states no relief with Tylenol." Do you see that?
A. I do.
Q. Are headaches common in individuals diagnosed with COVID?
A. Headaches can be a symptom of COVID-19, yes.
Q. Okay. So now let's go to Higgs 10. And if you're doing this on a PDF on your computer, it would be PDF page 11. Are you there yet?
A. I'm sorry. Almost.
Q. No, no. Take your time. I apologize.

A. I am there.
Q. Okay. You see this is also a note from December 20, 2020?
A. Yes.
Q. And you see it's at 9:50 a.m.?
A. Yes.
Q. And it says Mr. Higgs has a headache and stuffy nose and has pain.
A. Yes.
Q. Now let's go to Higgs 59, which would be -- if you have it on a PDF, that would be page 60 of your PDF, and just let me know when you're there.
A. I am there.
Q. Okay. And do you see it says at -- this is December 21, 2020. Do you see that? It's a medical note for Dustin Higgs, December 21, 2020?
A. I do.
Q. And that's five days after his COVID diagnosis. Right?
A. Yes.
Q. And this is at 10:29. He reports a headache and nasal congestion. See that?
A. Yes.
Q. Okay. Now just go one page prior, which would be 0058.
A. Okay.
Q. And do you see this note is from 13:11, which would be 1:11 p.m. Right?

A. Yes.
Q. On the same date, December 21, 2020.
A. Yes.
Q. And the report says he has shortness of breath, new as of a.m. today, and a headache. Do you see that?
A. I do.
Q. And it's common for people to develop shortness of breath days after a COVID diagnosis. Right?
A. Yes.
Q. Okay. Now let's go one page prior to that also, Higgs 0057, and do you see this is a note from December 22, 2020?
A. I do.
Q. It says he reports no symptoms?
A. Yeah.
Q. And now if you could go two pages prior, to page 0055.
A. I'm there.
Q. Okay. And this is December 24, 2020. Do you see that?
A. Yes.
Q. And it says he reported no symptoms, but in the comments it says "scratchy throat." Do you see that?
A. I do.
Q. Okay. Now let's go one page prior to that, page 0054.
A. I'm there.
Q. And this is a note now from December 5, 2020. Do you see that?

A. Yes.
Q. And now his headache has come back. Do you see that?
A. I do.
Q. Okay. And let's go one page up, to page 0053. Now, this is a also on December 25, 2020, but this medical note is from noon, right? It says twelve o'clock.
A. Yes.
Q. And it says "slight headache - improved: patient states 'my head is feeling better, my breathing feels a little funny though, but I have asthma and I think it is that.'"
Do you see that?
A. I do.
Q. Okay. Now let's go one page up, page 52, and this would be December 25, 2020. Do you see that?
A. Yes.
Q. There's a note, and it says there are no symptoms. Right?
A. Yes.
Q. Okay. Now, that's certainly common in individuals with COVID, that symptom cycle. Isn't that right?
A. Yes.
Q. Now, let's go all the way up to Higgs 8, which would be page 9 on the PDF.
A. I'm sorry. That would be 0009?
Q. 0008. I apologize.
A. Okay.

Q. And do you see this is a report from December 27, 2020?
A. Yes.
Q. And do you see it says, "Reports having a mildly 'stuffy' nose and nearly resolved headache with improving symptoms." Do you see that?
A. Yes.
Q. Okay. Now let's go all the way back to Higgs 0051, which would be page 52 of the PDF.
A. Okay.
Q. And do you see this is now from December 28, 2020? Do you see that?
A. Yes.
Q. And the note says he has a sore throat. Do you see that? Okay. Now let's go one page prior, to Higgs 0050.
A. Yes.
Q. You see it says -- this is from December 29, 2020?
A. Yes.
Q. And do you see it says under Screenings, COVID-19 and Isolation, and then it says yes, and it says cough. And then in parentheses it says Duration/Describe, and then it says persistent. Do you see that?
A. I do.
Q. Now let's go back to your declaration on paragraph 12. Do you have that handy?
A. I do.

Q. Okay. Let me know when you get there.
A. I'm there.
Q. And do you see -- if you on go down -- let me just count, one, two... about 15 lines, with the sentence that starts "On 12/29." Let me know when you get there.
A. Okay.
Q. Are you there?
A. I am there.
Q. Okay. So you know that in your declaration on 12/29/2020, the medical record reports no shortness of breath, sore throat, or other symptoms. Do you see that?
A. Yes.
Q. You didn't put here that the medical record states cough, persistent. Did you?
A. I did not.
Q. Okay. Now let's turn to page 11 of your declaration.
A. Okay.
Q. And do you see where you say at the very end, the very last sentence: "Patients who have more symptoms of cough, shortness of breath and objective findings of low oxygen level or elevated respiratory rate typically have more extensive shadows on CT scan of the chest."
A. Yes.
Q. Now let's go back to the medical records that we were just looking at again, and let's go to 0049. And this is a medical

record from December 30, 2020, at 8 a.m. Right?
A. Yes.
Q. You see that? And the medical record notes, "Shortness of Breath, Describe: 'Hard to catch my breath sometimes.'" Do you see that?
A. I do.
Q. And now let's go all the way up to Higgs 0001, which would be page No. 2 in your PDF, I believe.
A. I'm there.
Q. And this is also from December 30, 2020. Right?
A. Correct.
Q. And this says, "Patient reports 'I have a hard time catching my breath, I'm SOB at times. I feel like I have labored breathing sometimes.'" Do you see that?
A. I do.
Q. And the acronym SOB, does that mean short of breath?
A. It does.
Q. And now let's go to page 0005, which will be page 6 of the PDF.
A. I'm there.
Q. And on page 5, it's at 9:40 a.m. Right?
A. Yes.
Q. And it says "Per RN," and that means registered nurse. Right?
A. Yes.

Q. "Inmate reported having intermittent difficulty catching his breath without new onset." Do you see that?
A. Yes.
Q. And it also says "denies any symptoms."
A. Yes.
Q. Correct? And you were only provided the medical records up to December 30, 2020. Right?
A. Yes.
Q. Have you been provided the updated records from December 31 to January 2?
A. No.
Q. Would it surprise you if I told you that on January 1, a report noted that he had episodic shortness of breath?
A. It would not surprise me, no.
Q. And would it surprise you if I told you that, on January 2, 2021, in the comments it noted "same breathing as yesterday"?
A. I would not be surprised, no.
Q. And based on these records alone, Mr. Higgs would be classified as symptomatic. Right?
A. That is correct.
Q. And that's because, among other things, there were reports of shortness of breath. Right?
A. Correct.
Q. And there were reports of cough?
A. Yes.

Q. Okay. Now let's talk about Mr. Johnson a bit. So could you turn to Johnson-Johnson 0042?
A. I'm sorry. Zero-zero what?
Q. Four-two.
A. I'm there.
Q. And I apologize. I'm not there yet, but I will be in a second. Do you see there's a note from December 16, 2020?
A. Yes.
Q. And it notes a positive COVID test with a notation "symptomatic." Do you see that?
A. I do.
Q. Okay. And now let's go to Johnson 26, which will be 16 pages before that, which I believe would be PDF --
A. I'm sorry. You want me to go to Johnson 0026?
Q. Yes.
A. I'm there.
Q. And do you see this is a note from December 20, 2020?
A. Yes.
Q. And do you see a screening at 8:31 a.m.?
A. Yes.
Q. And do you see it describes "Cough (Duration/Describe: this AM - dry cough.)" Do you see that?
A. I do.
Q. And do you see it says "Comments: stuffy nose"?
A. I do.

Q. And do you also see that his oxygen saturation levels are noted at 97 percent?
A. Yes.
Q. Okay. Now, can we go three pages to Johnson 0023.
A. Okay.
Q. And this is a note from December 21 at 1:10. Is that correct?
A. Yes.
Q. And do you see it says,
"Yes: Cough (Duration/Describe: 3-5 days)"?
A. Yes.
Q. And now can we go two pages up to Johnson 21? 0021. Let me know when you get there.
A. I'm there.
Q. And do you see it says "Yes: Headache"?
A. Yes.
Q. And this is a note from December 23, 2020. Right?
A. Correct.
Q. Okay. Let's go back to your declaration again. Do you have that in front of you?
A. I do.
Q. Okay. So let's go to paragraph 12. Actually, go to page 5. It's a long paragraph.
A. Yes.
Q. And go 11 lines down.

A. Okay.
Q. Okay?
A. I'm there.
Q. Do you see that your declaration states no symptoms recorded for 12/22 and 12/23? Do you see that?
A. I do.
Q. Okay. But on 12/23 in the medical records, it was reported that Mr. Johnson had a headache. Right?
A. Yes.
Q. Now let's go back to the medical records again; and this time let's go one page up from where we were before, and that would be Johnson 0020.
A. Okay.
Q. And this is a record from December 24. And again it notes headache. Right?
A. Yes.
Q. Now let's go one page up, to Johnson 19. Let me know when you're there.
A. I'm there.
Q. And this is December 25. Right? And the record notes nasal congestion.
A. Yes.
Q. Now let's go to Johnson 18, and that's from December 26, right?
A. Yes.

Q. And you see it says "Report: Breathing has improved"?
A. Yes.
Q. Do you have any idea what it improved from?
A. I do not.
Q. Let's go to Johnson 004, and let me know when you're there.
A. I'm there.
Q. Okay. And this is from December 27. Right?
A. Yeah.
Q. And you see it says "Reports having a little cough." Do you see that?
A. Yes.
Q. Now let's go to Johnson 0017. Let me know when you're there.
A. I'm there.
Q. And this note is from December 28. Right?
A. Yes.
Q. And the record notes "Cough (Duration/Describe: persistent), sore throat."
A. Yes.
Q. You see that? So now let's go to Johnson 16, and that's from December 29, 2020. Do you see that?
A. I do.
Q. And this is from December 29, right?
A. Yes.
Q. And the record notes "Yes: Cough (Duration/Describe:

persistent.)" Do you see that?
A. I do.
Q. Okay. Now let's go back to your declaration for a bit, again on paragraph 12.
A. Okay.
Q. A few lines down from where you were before, starting with the medical record on 12/29/20, let me know when you get there.
A. I'm there.
Q. Okay. So you say the medical record on 12/29/2020 reports "little cough" in quotations, described as nonproductive. Do you see that?
A. I do.
Q. Okay. Let's go back to that medical record, Johnson 16, we were just at. Let me know when you're there.
A. I'm there.
Q. It doesn't say in this record "little cough," does it?
A. It does not.
Q. It says "Cough (Duration/Describe: persistent.)" Right?
A. Yes.
Q. Now, let's go back to paragraph 13 of your declaration.
A. Okay.
Q. Now, do you see that the first paragraph, it says, "In view of Mr. Higgs' and Mr. Johnson's minimal symptoms, any findings on a CT scan of the chest of either inmate would likely be minor." Do you see that?

A. Yes.
Q. Now, in paragraph 11 you cited three studies which we already discussed. Right?
A. Correct.
Q. That would be Inui, et al., Meng, et al., and the report from the British Institute. Is that right?
A. Correct.
Q. And those studies reported that anywhere from 44.5 percent and 94.8 percent in asymptomatic COVID patients show abnormal CT scans. Is that right?
A. Yes.
Q. Okay. And then you see it says -- next it states, "According to the American College of Radiology, CT should be used sparingly and reserved for hospitalized symptomatic patients with specific clinical indications for CT."
Do you see that?
A. Yes.
Q. And the reason that CT scans, though, are to be used sparingly is that they expose a patient to radiation. Right?
A. Well, there would be a number of reasons to use CT scans sparingly, but that would be one of them.
Q. But it's certainly not that they won't show abnormal CT scans in COVID patients. Right?
A. I'm sorry. I didn't quite understand the question.
Q. Sure. So three studies that we've already talked about

said that, in asymptomatic patients, when they receive CT scans, anywhere from 44.5 to 95 percent of those asymptomatic patients showed abnormal CT scans.

So what I'm asking is, the reason CT scans are used sparingly, or should be used sparingly, is not because they won't show abnormal CT scans on COVID patients.

A. The reason CT scans should be used sparingly is because -- for a variety of reasons. Number one, unnecessary exposure to radiation. Number two, it's very unlikely to change management in any given patient. Number three, you know, there's limited availability of CT scanners. There's costs involved. There's a variety of reasons to use CT scans sparingly.

Q. And I appreciate that answer. Could we go to page 14 of your declaration?

A. Yes.

Q. Do you see where it starts, "Further, there is no evidence in the medical literature suggesting an injection with pentobarbital would somehow exacerbate symptoms or physiological abnormalities in patients with COVID-19." Do you see that?

A. I do.

Q. As far as you're aware, there's no literature at all on this subject. Correct?

A. I was unable to find any literature on this subject. That is correct.

Q. And you haven't researched what happens to an individual

if they are injected with 5 grams of pentobarbital. Isn't that right?

A. I have researched the materials that I was provided by the government. I have not done my own independent research, no.

Q. Let me ask you a question about the heart. When a note says left atrial dilation, that means that the left atrial is enlarged, right, that there's left atrial enlargement?

A. Correct.

Q. So let's turn to paragraph 7 of your declaration, and let me know when you're there.

A. I'm there.

Q. And do you see it says, "An echocardiogram (ultrasound of the heart used to evaluate cardiac structure and function) obtained on Mr. Higgs on May 26, 2020, showed a left ventricular systolic function and size normal (the left ventricle is the main heart chamber which pumps blood to the entire body except to the lungs.)"

A. Yes.

Q. Do you see that?

A. Yes.

Q. And you don't say anything else about that May 26, 2020, echocardiogram. Right?

A. Yes. It goes on to say there was moderate mitral valve regurgitation, and I explain what that is. And then it also showed there was no significant change compared to the previous

study which had been done on 7 May 2019.
Q. Sure. So let's read that. So you also say, "There was moderate mitral valve regurgitation (a leakage of blood backward from the main chamber of the heart, the left ventricle, into a small upper chamber of the heart, the left atrium) and no significant change compared to the study on May 7, 2019."
Do you see that?
A. I do.
Q. Now let's go back to the medical records. If you could look at Higgs 106?
A. I'm there.
Q. And this is the result of the echocardiogram from May 26 that you were discussing in paragraph 7 of your declaration. Right?
A. Yes.
Q. Now, let's go down one, two, three, four, five lines after results. You see that?
A. Yes.
Q. Do you see where it says the left atrium is borderline dilated?
A. I do.
Q. That was not in your declaration, was it?
A. It was not.
MR. KURSMAN: I have nothing further, Your Honor.
THE WITNESS: If I may, Your Honor, elaborate on my

answer?

THE COURT: Dr. Locher, I believe Ms. Lin will be allowed to question you on redirect if there's further elaboration needed. Ms. Lin?

MR. DRYLEWSKI: Judge? Pardon me, Judge Chutkan. This is Alex Drylewski. If I may, I would like to just ask a couple of questions with the Court's permission?

THE COURT: Oh. Yes, Yes. I'm sorry, yes. Go ahead.

MR. DRYLEWSKI: Thanks very much.

CROSS-EXAMINATION

BY MR. DRYLEWSKI:

Q. Dr. Locher, if you could turn to page 12 of your declaration?

A. Yes.

Q. And this is where you purport to identify the symptoms of Mr. Higgs and Mr. Johnson. Correct?

A. Yes.

Q. And in this paragraph you don't identify anywhere any of Mr. Johnson's oxygen saturation levels. Am I correct?

A. Correct.

Q. And you don't identify anywhere in this paragraph that Mr. Johnson's oxygen saturation levels decreased from December 19 to December 20. Am I correct?

A. Correct.

Q. Were you aware that the last recorded oxygen saturation

reading for Mr. Johnson was on December 26?
A. I had been aware of that when I reviewed the record, yes.
Q. And are you aware that there have been no recorded oxygen saturation readings for Mr. Johnson since that time?
A. I would have to look back at the medical records.
Q. Are you familiar what how oxygen saturation levels are recorded?
A. Yes.
Q. Are you familiar with a pulse oximetry test?
A. Yes.
Q. And is that done by putting a clip on the patient's finger?
A. Yes.
Q. Thank you.

MR. DRYLEWSKI: No further questions, Judge.

THE COURT: All right. Ms. Lin, brief redirect.

MS. LIN: Yes, Your Honor. I'll just pick up what we were going through.

REDIRECT EXAMINATION

BY MS. LIN:

Q. Dr. Locher, if you could go to the echocardiogram that we were just talking about with Mr. Kursman, do you have that in front of you? I'm sorry. That's Higgs 0016.
A. I am there.
Q. You were asked a question about the fact that the reference to borderline dilated about the left atrium in the results

section, line 5? So can you tell me what is the conclusion of this report?

A. Yes. Well, if you look at conclusion, here it says the left ventricle is normal and the left ventricular systolic function is normal. The ejection fraction, that is how efficiently the left ventricle pumps blood, that would be normal at 60 to 65 percent.

And then it goes on to say the spectral Doppler flow pattern is normal for age. There is moderate mitral valve prolapse, and it elaborates here on the prolapse of the anterior leaflet, and it says there is moderate mitral regurgitation, and then some other findings, and at the bottom, there's no significant change.

Q. And with that conclusion you just read in mind, is it significant to you that there's a reference to the fact that the left atrium is borderline dilated?

A. Well, to me a borderline dilated left atrium is normal. It's at the upper limit of normal.

Q. And so when you see a report like this, would you think that the patient has significant heart issues?

A. Yes. He has moderate mitral regurgitation.

Q. And is that a very common diagnosis?

A. Yes.

Q. Okay. So if I can refer you to -- this is the Higgs 0040.

A. I am there.

Q. I want to ask you a few questions about those, but earlier you were asked and we went through the symptoms that are from the medical record, and I just summarize very briefly we talked about headaches, stuffy nose, nasal congestion, shortness of breath, scratchy throat.

So in addition to those symptoms, what do you typically consider, or what objective factors do you look at in addition to those symptoms we discussed to determine whether the inmate -- I mean, sorry -- the patient is having sufficient COVID issues?

A. Well, a physical exam and measurement of pulse oximetry, you know, the usual things, collecting respiratory rate, heart rate, blood pressure, you may decide on that basis to perform laboratory analysis with blood tests. You may wish to get a chest x-ray or even a CT scan.

Q. So if you could look at the pages of Higgs 0040 and 00 -- all the way through 0043. And just to get you referenced, these are the vitals. And so if you look at these pages, can you tell me, in the factors that you just identified, how was Mr. Higgs in terms of those other objective clinical factors that you were just listing?

A. On 0040 there's a list of body temperatures here, and these would be considered normal.

Q. So he had no fever.

A. No fever. Correct. On 0041 there is some body

temperatures and then some pulse rates, and they would all be considered normal. There is also some respiratory rates, and that would be considered normal. On 0042 there is a respiratory rate and several blood pressures.

THE DEPUTY CLERK: Counsel, it's now 10:40.

MR. KURSMAN: And, Your Honor, at this point I'm going to object to all these questions. This isn't in his report, and I didn't question him on this.

THE COURT: I've been listening, and -- I think you are moving past -- this is redirect, which is designed to address only those points brought up on cross-examination, and I think you're moving beyond that. So I'm going to sustain the objection. And we are close to the time. It's 10:40. How much more do you have left?

MS. LIN: I have a few more questions, Your Honor.

THE COURT: All right. Let's --

MS. LIN: I'll try to wrap it up.

THE COURT: By 10:45. All right. Thank you.

BY MS. LIN:

Q. Dr. Locher, your opinion is that both of Mr. Higgs and Mr. Johnson do not suffer from COVID -- do not have COVID-related lung damage, and despite the fact that we have been talking about lots of these symptoms as just described, how did you reach that opinion?

A. Well, there is no objective evidence --

MR. KURSMAN: Again, Your Honor, I'm going to object to this again. This is not what I went into in cross-examination.

THE COURT: I agree. The objection's sustained.

BY MS. LIN:

Q. Dr. Locher, with those symptoms that you were cross-examined about, do they tell you whether the inmates, Mr. Higgs and Mr. Johnson, suffer from COVID-related lung involvement or lung damage? I'm sorry. Let me clarify my question. Based on the symptoms that we were describing, which were -- that Mr. Kursman went through, which were headaches stuffy nose, pain, nasal congestion, shortness of breath?

A. Do these symptoms imply that either inmate has lung damage. Is that the question?

Q. Correct.

A. Well, lung damage to me means significant impairment in physiology or in the patient's ability to function. So lung damage would mean that they have low oxygen levels; they're unable to carry out usual activities because of shortness of breath. That's what lung damage to me means.

Q. And so when you look at the medical records as a whole and with the objective -- because I know Mr. Kursman kind of picked through the medical records to talk about the symptoms. So how do you evaluate, based on these overall medical records, to determine whether these inmates are suffering from COVID-19

to the extent of lung damage?

MR. KURSMAN: Your Honor, again I'm going to object. I didn't ask him to opine on them. I was just asking if they were included in his declaration and if they were in the records themselves.

THE COURT: I'll allow the question, although I have to tell you both that there's no jury here, and I -- I'm going to allow the question. Go ahead, Mr. Locher. You may answer the question.

THE WITNESS: Sorry. Could you restate the question?

BY MS. LIN:

Q. Yes. Dr. Locher, we went through the symptoms that these inmates experienced, and so -- and I know Mr. Kursman went through some of the symptoms from the medical records. So having reviewed the medical records, is it your opinion that these symptoms that we discussed earlier are sufficient to show you that these two inmates suffer from lung damage?

A. Well, once again, lung damage is manifested by some finding that implies that the lungs are not functioning properly. You know, low oxygen saturation level, for instance, would be a sign of lung damage. Both inmates undoubtedly have some respiratory system involvement problems because they both have some symptoms.

THE COURT: All right. Thank you.

Was that your last question, Ms. Lin?

MS. LIN: Your Honor, I just have one more question.

THE COURT: Okay. Go ahead.

BY MS. LIN:

Q. So, Dr. Locher, earlier you were asked about Mr. Higgs' medical record that's dated December 30, and so that is page 0005. And you were asked about Mr. Higgs' reporting shortness of breath?

A. Yes.

Q. Or I'm sorry. Intermittent difficulty in catching his breath. And so when presented with a patient complaining about the intermittent difficulty of catching the breath, what would you typically do in assessing that condition?

A. Well, I would do just what they had done here. I would do a typical exam and a chest x-ray.

Q. And what did that typical exam show? And I believe that's noted on the next page, on 0006.

MR. KURSMAN: I'm going to object again, Your Honor. This again is now -- I apologize.

THE COURT: I'm going to overrule only because you did ask him about the medical records and the physical exam. But I have the records. So, you know, please bear that in mind.

THE DEPUTY CLERK: It's now 10:47, Your Honor.

THE COURT: Yeah. Ms. Lin says this is her last question. Go ahead, Dr. Locher. You may answer.

THE WITNESS: The physical exam here -- and I'm

looking at 0006 -- is normal. I'm typically looking here at "Pulmonary: Thorax: Inspection WNL," which means with normal limits, "normal expansion excursion, clear to auscultation." That means they listened to the chest and there were no abnormal sounds. Cardiovascular, they say there's a faint mid systolic click and there's chronic finding, and there were no other findings on physical exam.

MS. LIN: Your Honor, may I just have one final concluding question?

THE COURT: That would be what final means, but yes, Ms. Lin.

MS. LIN: Okay.

BY MS. LIN:

Q. Dr. Locher, with this physical exam and that chest x-ray that you reviewed earlier, would you then order a CT scan?

A. No.

Q. Thank you.

MS. LIN: I don't have any further questions.

THE COURT: All right. Thank you. Thank you, Dr. Locher, for taking time out of what I know is a very busy day. We appreciate it. You are free to get off the call, and thank you very much.

THE WITNESS: Okay. Thank you.

THE COURT: Okay. Let us take a break. How much time do you need, Mr. Wayne?

COURT REPORTER: About fifteen?

THE COURT: All right. Let us resume at five after 11:00. I'm going to hang up, and Mr. Bradley, if you'd just let me know when you're ready and I'll call back in.

MR. KURSMAN: I apologize. Can I just ask a quick question? Is there a witness that you would like to be on the stand next, just so we could let that witness know to call in.

THE COURT: No. I'm going to leave your presentation up to you, but I want to just remind both of you that I have the medical records. I understand there are points you need to make with regard to whether the witness's testimony comports with or contradicts or challenges the medical records or the evidence, and I understand that. But I'm holding you to your time limit.

MR. KURSMAN: Thank you, Your Honor.

THE COURT: How you all choose to present the evidence and what witnesses you choose to put on is up to you, but I'm holding you to your time limits. All right? So let's start at five after 11:00.

(Recess from 10:49 a.m. to 11:09 a.m.)

THE COURT: Hello. This is Judge Chutkan.

THE DEPUTY CLERK: This honorable court is now in session.

THE COURT: All right. Next witness.

MS. LIN: Your Honor, Johnny Walker will be cross-examining Dr. Stephen.

THE COURT: Okay. Mr. Kursman, who will be putting on Dr. Stephen?

MR. KURSMAN: I will, Your Honor. Before I do, Your Honor, I just want to make sure that the Court and opposing counsel had access to the chest x-rays, because we will be discussing them. I apologize, but if we were in court I would try to have them up so that Dr. Stephen can explain what he's looking at, so I just want to make sure that both Your Honor and opposing counsel have those x-rays.

THE COURT: I have them -- wait. Let me just make sure I'm pulling them up. Yep, I have them.

MR. KURSMAN: And one other thing, Your Honor. If you go to the top view and change the viewing from 100 percent, and then you click zoom and go to 200 percent, you can see the x-rays much better.

THE COURT: All right. I will... wait. Now I'm not sure -- okay. Here we go. All right. Go ahead and call your witness. Is everybody else okay with the x-rays? All right. Hearing no response, I assume everyone is. You can call Dr. Stephen, Mr. Kursman.

MR. KURSMAN: Mr. Higgs will call Michael Stephen. Dr. Stephen, are you on the line?

THE WITNESS: I'm here. Yes.

THE COURT: All right. Good morning, Dr. Stephen. This Judge Chutkan. Thank you for taking time out to testify

here. Mr. Kursman will ask you -- well, let me first get you sworn.

THE DEPUTY CLERK: Yes. Dr. Stephen, will you please raise your right hand?

MICHAEL STEPHEN, WITNESS FOR PLAINTIFFS, SWORN

DIRECT EXAMINATION

BY MR. KURSMAN:

Q. Good morning, Dr. Stephen.

A. Good morning.

Q. Did you receive a set of chest x-rays related to Mr. Higgs yesterday, January -- I apologize. I just hear a lot of breathing in the background.

THE COURT: Yeah. I'm going to ask everybody to mute their phones. All right. Let's try again.

BY MR. KURSMAN:

Q. Did you receive a set of chest x-rays related to Mr. Higgs yesterday, which would be January 4, 2021?

A. That's correct. At 6 p.m. I came home, and there was a package waiting for me.

Q. And what are the dates on the x-rays that you received?

A. I have a date of December 30th of 2020 on one, and then the next set of three films is October 18th of 2018.

Q. And did you look at those x-rays?

A. Yes, sir. I did.

Q. And how many x-rays on average do you look at per month?

A. It depends if I'm on service or not. So about three months of the year I'm on service; I'll see about 20 to 30 patients a day. So it's between 100, 150 patients' chest x-rays that week. And when I'm on service in the clinic, it may be 20 x-rays. So it adds up to maybe a thousand x-rays a year, and I've been doing that starting pulmonary fellowship in 2005.

Q. Are you familiar with common markers of COVID-19 on chest x-rays?

A. Yes, I am. Ever since COVID started, we have been hit very hard here in Philadelphia, and I've seen hundreds and hundreds of COVID patients; and, unfortunately, it continues to this day.

Q. And what is your opinion about the x-rays that you received yesterday?

A. The most obvious opinion, which is very clear to see, is that on the December 30th 2020 film, there are significantly increased interstitial markings, and we know this because you can directly compare it to the one from approximately two years ago. They're centered mostly on the right, but you also see increased interstitial markings on the left.

And by interstitial markings, what I mean are white lines, extra white lines, extra white streaks throughout the black part of the lung. And when I say the right lung, it's going to be on your left, so it's going to be on the patient's right. And it's very common to have right greater than left interstitial markings in COVID pneumonia. It's very well described in the

literature that the right is more affected than the left.

And it's very clear to see. You can take a look at the December 30, 2020, film and see increased white streaks throughout the right lung, less so but also prominent in the left lung. Scroll down to the October film from 2018, and you do not see those white streaks. So it's very clear he has increased interstitial lines consistent with COVID-19 pneumonia. There's no question about that.

Q. And when you say the right lung, what we're looking at, the left side of the picture, that would be the right lung?

A. Correct. The patient's right, our left.

Q. And do you have a copy of the x-rays in front of you?

A. I do.

Q. And can you turn to the x-ray from 12/30/2020, and that would be on the first x-ray in this Word document on page 1.

A. I'm with you.

Q. Okay. Now, can you explain to the Court where these interstitial markings are on this x-ray?

A. Sure. So let's take a look at his right lung here. It's on your left. It's the black area. And then there's a series of ribs overlying it. Underneath and around the ribs, we see these very prominent, white jagged streaks, and they start at about one-third up from the bottom of the film.

You can see sort of a white dot in the right mid-lung zone, and there's a very prominent streak around it. But the streaks

go completely up and down from the top of this lung to the bottom of the right lung. They're less prominent in the left lung, but if you put them side by side with the film from two years ago, you very clearly see that there are increased interstitial markings, which is a classic sign of viral COVID pneumonia.

Q. Can we now go to page -- I believe it's 4 of the Microsoft Word document. Let me know when you're there.

A. I'm here, yeah.

Q. And you see that's his x-ray from October 18, 20 -- from October 18, 2018?

A. Correct.

Q. And are there interstitial markings on this x-ray?

A. There are a few focused in the upper lobe, but there's none in the middle lung zones on the right or the left, and they're just more prominent. Even the ones we see in October are much more inflamed now.

So we see a lot of new interstitial lines on his x-ray, and I think that's very clear, that everybody can see that, that if you compare those one after the other, that you see these extra white jagged lines sort of going out in the middle of his lung zones, which are very new and very acute and indicative of very acute COVID pneumonia.

Q. And when you see increased interstitial markings from one x-ray to another, one just last week, what does that mean

to you?
A. You know, you have to put everything in clinical context. So in the context of him having symptoms of COVID, of him having a positive COVID test, we can reliably say, with a hundred percent certainty, that those increased interstitial lines are from a viral pneumonia from COVID. We have a diagnosis, we have symptoms, and now we very clearly have x-ray findings. So they all go together quite clearly in this case.
Q. Now, when you say the lungs are consistent with COVID pneumonia, what does that say about his alveolar capillaries?
A. So we know, based on this inflammation that we see quite clearly, that his alveolar capillary interface has been breached. He has hundreds of thousands, probably, of COVID viral particles in there. He's also got a massive inflammation of white blood cells that have now trafficked into his lung and are spilling out from the capillary, both into his interstitium as well as his alveolus. So that capillary alveolar membrane has clearly been breached with viral particles as well as inflammatory white blood cells. There's no question.
Q. In your opinion, based on these x-rays showing increased interstitial markings consistent with COVID pneumonia, is Mr. Higgs at increased risk for flash pulmonary edema?
A. Oh, there's no question. Any stress on the lungs, the heart, the right half of the heart has to beat all of its blood through the lungs; the left heart obviously pumps the blood

to the body. So the right heart is going to have to be working very hard to get that blood through these areas of inflammation, and it's going to put him at huge risk for pulmonary edema. No question.

Q. In your opinion, how quickly will that flash pulmonary edema occur after an injection of 5 grams of pentobarbital?

MR. WALKER: Objection, Your Honor. I think this goes beyond the limited direct for which Mr. Stephen was disclosed last night, which has to go to the x-ray images.

THE COURT: I'll allow it, but not much more, Mr. Kursman. We have plenty of testimony --

THE WITNESS: Almost immediately, I would say to answer your question, Mr. Kursman.

BY MR. KURSMAN:

Q. Now I'm going to talk to you just real quickly about what Dr. Locher just testified to. Did you hear Dr. Locher's testimony?

A. Yes, sir, I did.

Q. And did you hear when he said the only abnormality that was seen on the x-rays was one, and that was that he had a scar on his lungs? Did you hear that?

A. I heard that, yes.

Q. And do you have an opinion on that?

A. I agree with that -- I disagree with that. Excuse me. I disagree with that completely. What jumps out at you

immediately as a lung doctor and as a critical care, board-certified critical care physician, is that his lungs are severely hyperinflated, that his asthma is in a severe state.

As you can see on these x-rays, if you have them in front of you, in the upper left corner as we're facing the screen, it says Chest 2 view. When I looked at Mr. Higgs' x-rays, they had to take three views of his chest because his lungs are so big and so damaged from asthma that they cannot fit his lungs onto a single lung plate.

So he is not a Chest 2 view. He's a Chest 3 view because they cut off areas of his lungs with a single plate, and they have to reposition the plate and shoot it again. So you can see this quite clearly back in 2018, and you can see that quite clearly now, that they have to take three views. And that's very rare unless you have very serious obstructive lung disease of asthma.

You can also quite clearly count the number of ribs that he has. Normally -- and you can consult any textbook on chest radiology -- you should only see seven to nine ribs. I can quite clearly and quite obviously Count 11 ribs on both sides.

That means he's got so much air in his chest from poorly controlled asthma that it's pushing the diaphragms down and you're seeing all these more ribs than you should. You should not see 11 ribs. That's just a completely objective sign. You know, there's nothing subjective about that reading.

You can also see in the lateral view, if you guys want to pull up image No. 3, the first image on page 2, you can see how tall his lungs are. His lungs are so hyperinflated from severe asthma that they can barely fit on the plate here.

You can also see that his diaphragms, which is the muscle that separates the thorax from the abdomen, the chest from the belly, are very flat. You can see that quite clearly on the lateral view from 2020 December. They're very flat. It's called "tabletop." He's got a tabletop diagram from severe asthma, severe poorly controlled asthma.

And you can see that that table-topping has gotten worse from 2018 to 2020. You can see that quite clearly, that there's increased flattening of that diaphragm over a two-year period. And some of that could be worsening asthma, likely, and hyperinflation. It's also very likely that this COVID pneumonia, this inflammation, is further obstructing his lungs, giving him symptoms and pushing down on those diaphragms as well.

So, you know, hard to say exactly what's causing those flattened diaphragm change acutely because we don't have a film recently, but it's likely a mixture of his asthma and the very clear interstitial markings that we see from his COVID pneumonia.

Q. Thank you, Dr. Stephen.

MR. KURSMAN: I have no further questions.

CROSS-EXAMINATION

BY MR. WALKER:

Q. Good morning, Dr. Stephen. My name is Johnny Walker. I'm counsel for the government. First of all, you know that there's no dispute that Mr. Higgs has been diagnosed with COVID. Correct?

A. Correct.

Q. And you understand that there's no dispute that he is experiencing symptoms from COVID. Correct?

A. Correct.

Q. And you also understand there's no dispute that he has a history of some asthma. Correct?

A. Correct.

Q. Okay. I want to discuss some of the studies that you mention in your report. I don't know if you have those handy.

A. I have my report handy, which I can pull up. Go ahead.

Q. I'm simply interested in paragraph 9 where you discuss a number of articles. These articles relate to a number of different conditions sometimes associated with COVID-19. One of those is blood clots. Correct?

A. Correct.

Q. And those are referred to sometimes as pulmonary embolisms?

A. Blood clots could either be in the legs or the lungs. If they're in the lungs, we call them pulmonary emboli. If the they're in the legs, they're called venous thrombi. So

"blood clots" is the term to use for both of those, and if they're in the lungs, then they would be pulmonary emboli.

Q. I appreciate the clarification. And it's pulmonary emboli that you're particularly addressing here. Correct?

A. Correct. That is correct.

Q. And what you say in paragraph 9 is -- about halfway through, you state that -- a little more than halfway through on this page -- "evidence of blood clots in this study is referenced as high as 30 percent in certain cases."

Did I read that correctly?

A. Correct.

Q. And looking at footnote 2, you cite the study. I'll call it the Sakr study. S-A-K-R, Mr. Wayne.

Is that correct?

A. That's the author, Sakr. S-A-K-R. Correct.

Q. I think he has a cohort that's a listed author.

And you reviewed that report correctly?

A. Correct.

Q. And you're aware that that report says, "The incidence of PE," standing for pulmonary embolism, "is reported to be around 2.6 to 8.9 percent of COVID-19 patients who are hospitalized, and up to one-third of those requiring intensive care unit administration." Correct?

A. Correct.

Q. And so the one-third number that you're talking about

there is as high as 30 percent. That would seem to relate to individuals who would require intensive care unit administration. Correct?

A. Correct.

Q. And you understand that Mr. Higgs has not required any intensive care unit administration. Correct?

A. Not yet. No. He has not.

Q. And you also understand that he does not require hospitalization. Correct?

A. Correct. I will note that in the study that it said that incidence of PE was found in 23 to 30 percent of the patients who underwent CTA imaging. I believe that was not just intensive care unit patients. That was all comers in this hospital.

Q. Well, if you look at the main text, that summarizes the main point of the article. Correct?

A. What main texts are you referring to?

Q. It's in the article. There's an abstract which includes background text main conclusions. Are you familiar with that setup?

A. Yeah, but this is what's called -- this is a conglomeration of different studies. So I can read it directly from the study: "In two large retrospective French cohorts, the incidence of PE among patients positive with SARS Co-V-2, regardless of whether they were or were not admitted to the hospital, was 1.1 and 3.4

percent respectively. Evidence of PE was found in" --

THE COURT: Dr. Stephen? This is Judge Chutkan. For the sake of my court reporter, when we read, it's our natural tendency to speed up. I'm going to ask that you slow down so that my court reporter can take down what you're saying.

THE WITNESS: Sure.

THE COURT: Okay.

THE WITNESS: So I just want to clarify that that 30 percent I was referring to were not ICU patients as you have mentioned, Mr. Walker. They were evidence of PE 23 to 30 percent in patients who underwent CT imaging in two retrospective French cohorts, and they may or may not have been admitted to the hospital. So that's where that 30 percent comes from. So those are what I'm refer -- that's the patient population in which I am referencing, and those are references 29 and 30 in that paper.

BY MR. WALKER:

Q. Well, that's a paper discussed in this paper. Correct?

A. Correct.

Q. They're a conglomeration?

A. Correct. So there's two papers. One of them was 23 percent, and one of them was probably, you know, 30 percent, something like that.

Q. And with respect to that paper, you don't know whether those individuals were hospitalized or required ICUs.

A. Some were not hospitalized, and some were hospitalized. I couldn't give you the exact percentages. And it says here quite clearly "they were or were not admitted to hospital."

Q. I just want to make sure that the conglomeration of data reported in this paper, the Sakr paper, is that PE is reported to be around 2.6 to 8.9 of COVID in hospitalized patients and up to one-third of those requiring intensive care unit. Correct? That's the conclusion of the Sakr paper, based on the review of the paper you just discussed as well as others.

A. Correct. But that is not the number I was referencing in my text.

Q. I understand that. And the conclusion of the Sakr paper, by the way, is, quote, "Unfortunately, little is known about the epidemiology and the pathophysiologic mechanisms underlying COVID-19-associated PE because of the lack of large prospective studies in this context."

You're aware that's the conclusion of that article?

A. Correct.

Q. And this article and the other papers that it examined are retrospective studies. Right?

A. Of course.

Q. And that means that they look at past cases rather than enroll new study participants.

A. Correct.

Q. And all of the studies relied on in your report are

retrospective studies. Correct?
A. I don't that's -- I mean there's observational studies that are not respective, no. The outcomes of MRI in patients recently recovered from coronavirus 2019, that was a realtime study.
Q. It's not a prospective study.
A. Well, it's sort of just a point-in-time study.
Q. But not a prospective study. Correct?
A. Whether it's -- the question is kind of irrelevant in this case because you're just imaging somebody and reporting on the results. It's neither retrospective or prospective. You're just commenting on a finding that you've done.
MR. KURSMAN: Your Honor, I'm going to object to these questions. Counsel for government has now asked the same question about three or four times.
THE COURT: The point has been made. I'm going to -- well, the point's been made. Why don't we move on.
BY MR. WALKER:
Q. Going back to your paragraph 9, Dr. Stephen, let me refer you to -- you testified -- you saw the x-rays of Mr. Higgs today. Correct?
A. Yes.
Q. And you didn't identify any pulmonary embolisms on those x-rays. Correct?
A. That's not something that you can identify pathologically

on a chest x-ray.
Q. Okay. Going back to your paragraph 9, you note another study -- and now referring to conditions of the heart. You state, "Another study showed that in 62 percent of cardiac specimens, COVID-19 was detectible." Correct?
A. Correct.
Q. You cite a Lindner -- Lintner article?
A. I have -- Lindner. L-I-N-D-N-E-R. Correct.
Q. And that was a study of autopsies of persons who had died of COVID-19. Correct?
A. I certainly hope so.
Q. And so it's fair to say that all of those were extremely severe cases of COVID-19.
A. I don't -- I would assume so. Yeah.
Q. And this figure, the 62 percent figure, indicates only the number of instances in which the virus was present in the heart. Is that correct?
A. In the study. Correct.
Q. And that 62 percent figure, it's basically all indications of virus present in the heart regardless of extent or severity. Correct?
A. Could you repeat the question? I didn't quite understand that.
Q. Yeah. It encompasses instances in which any amount of virus is present in the heart, regardless of the extent and

severity.
A. You know, it depends on the nucleic acid amplification test that they used in the study. You know, I don't know the sensitivity of their specific test, so I could not intelligently answer that question. There's different --
Q. I'll try to tailor it to that answer.
A. Sure.
Q. Based on their tests, if it returned any amount of presence of the virus in the heart, that would have been reported regardless of extent or severity.
A. Not necessarily, no. Again, I'll go back to my other answer on that. It depends completely on the sensitivity of the nucleic acid amplification and the cutoffs they use. They may have a cutoff of, say, 500 viral particles, and if they see 490 they may call it negative.

So the sensitivity and specificity of these different nucleic acid amplification tests is variable. They may have seen some viral particles in that other 38 percent, but depending on the cutoff and the sensitivity and specificity of their specific nucleic acid amplification test, the answer to your question is unknown.
Q. But you reviewed this study. Correct?
A. I did, but I did not -- I do not believe that they published their sensitivity and specificity of the nucleic acid amplification test.

Q. And there's no cutoff stated in there?
A. I would have to double-check on that.
Q. Having reviewed the study, though, for inclusion in your report, you cannot, sitting here today, say that there was any cutoff to that test?
A. There certainly was. There is a cutoff to every test that we know of. I doubt it was reported. That's usually not something that's recorded in a study. I can try and pull up the study right now and see, but I doubt that that sensitivity and specificity was recorded in that.
Q. Going again to the conclusion of this article, the conclusion of this article is that the current data indicates that the presence of SARS Co-V-2 in cardiac tissue does not necessarily cause an inflammatory reaction consistent with clinical myocarditis. And myocarditis is an inflammation of the heart; correct?
A. Correct.
Q. And have I stated that conclusion correctly?
A. I don't have the paper in front of me, so I don't know.
Q. Do you recall that being the conclusion of the paper?
A. I don't -- I cannot recall or disrecall at this time. I'd have to pull up the paper and see it. But I trust you. There's no reason for me not to trust that's in the paper.
Q. Okay. Thank you. You also, in paragraph 9, mention one study of 58 completely asymptomatic COVID-19 patients.

"Shows evidence of pneumonia on CT scans in 65 out of 58 patients or 94.8 percent." Correct?
A. Correct.
Q. And that's the Meng study. Is that right?
A. Correct.
Q. And that was a study -- this was published in -- published in April 2020, and the 58 individuals were patients at a hospital in Wuhan, China. Correct?
A. Correct.
Q. And that is where we understand COVID-19 to have originated. Correct?
A. So far. There's some debate about that, but yeah, so far. That's true.
Q. No doubt. You characterize these as asymptomatic COVID-19 patients, don't you?
A. At the time of the CT scan, the paper clearly says they were asymptomatic. That's correct.
Q. You're aware, though, that the paper also says that a number of them developed symptoms after the first scan.
A. Correct. Not surprisingly.
Q. So not all of these were asymptomatic patients throughout the course of their COVID-19 experience.
A. Certainly not. And you would not expect them all to be asymptomatic, no.
Q. And you use the term "pneumonia" here. I'll just note

the study uses the term "pneumonia" to refer to COVID-19 generally, doesn't it?

A. I do not believe that's the case, no.

Q. The study refers to everyone enrolled in the study as having been tested positive for what it calls "COVID-19 pneumonia."

A. They could state that, but pneumonia means pathologically, and it doesn't mean what this paper says about it, that there's inflammation in the lungs that is detected on the CT scan. And that's the bar they themselves use in that paper for defining pneumonia, because there are people who don't have it. So people who tested positive for COVID-19 pneumonia did not have, you know, pneumonia.

Q. But everybody in this study had what is called COVID-19 pneumonia.

A. I do not -- I would not say that, no.

Q. You're not aware that --

A. I would interpret what they are saying, and there may be a language or a translation issue, but they tested positive for COVID-19, they were asymptomatic, and these patients were scanned. Some of them did not have pneumonia. The CT scan is the gold standard for pneumonia. So 5.2 percent of these COVID positive patients did not have pneumonia. I think there's just something lost in translation there as to what you're asking about.

Q. So if this paper says everybody in the study had COVID-19 pneumonia, you're chalking that up to a translation error?

THE COURT: Mr. Walker? Mr. Walker? Could you please slow down?

MR. WALKER: Yes. I'm sorry, Your Honor. And I'm sorry, Mr. Wayne.

BY MR. WALKER:

Q. I'll repeat my question, Dr. Stephen. If this paper uses the term COVID-19 pneumonia to refer to everybody enrolled in the study --

A. They did so inappropriately.

Q. And you're chalking that up to a translation error, you believe?

A. I don't know what the -- I don't know what the error was. I don't need to know what the error was. I know that 5.2 percent of these, whatever they call them, did not have inflammation on their CT scans. So I would not call them pneumonia, and I don't need to opine as to what the issue was there with their poor choice of language.

Q. Okay. You also refer in paragraph 9 to kidney damage. Correct?

A. Correct.

Q. You say "Asymptomatic patients have ongoing kidney damage that include" -- it's in the declaration, and I've save our court reporter the medical terminology. But you're familiar

with that representation?
A. Correct.
Q. In your report?
A. Yes.
Q. And you cite a consensus report of the 25th Acute Disease Quality Initiative Work Group. Correct?
A. That's correct.
Q. And that paper notes that rates of AKI -- and that stands for acute kidney injury?
A. Okay.
Q. Is that right?
A. Yes.
Q. Okay. "Reported rates of AKI are extremely variable; however, available evidence suggests that it likely affects greater than 20 percent of hospitalized patients and greater than 50 percent of patients in the ICU." Correct?
A. Correct.
Q. And again we know that neither Mr. Higgs nor Mr. Johnson have been hospitalized, nor have they been admitted to the ICU. Correct?
A. That's correct.
Q. I want to talk to you briefly about -- or go to paragraph 12 of your declaration.
MR. KURSMAN: Your Honor, could I just interject and object real quickly? It's not a specific objection. I just

want the Court to be aware that the government has now been doing cross-examination and direct examinations for much longer than plaintiffs' counsel. We have been timing ours, and we are only at something like 50 minutes so far. Yesterday, they spent a good deal on Dr. Crowns. We spent about 10 minutes on him.

THE COURT: Well, okay. Let me just stop you there. Yesterday -- you know, I didn't have a time limit on yesterday because we were having one witness. But as for today, I'm keeping the parties to their time limits, and I'm not counting the time that the government is spending cross-examining -- well, I'm counting the time that the witness is on the stand, but I am going to take into consideration how long the cross-examination was. But what's your objection, Mr. Kursman?

MR. KURSMAN: I'm sorry. It's not an objection. I just am asking the Court not to hold these lengthy examinations by the government against plaintiffs' counsel.

THE COURT: I'll take that into consideration. And I'll remind everybody, both sides, that again there's no jury here. I'm able to draw inferences, I think, fairly without, you know, too much hand-holding. So given our time limitations, I urge you all to get to the point.

All right. You may continue, Mr. Walker.

MR. WALKER: Thank you, Your Honor.

BY MR. WALKER:

Q. Just a couple points. Going to paragraph 12, Dr. Stephen.

A. Yes.
Q. You discuss in this Mr. Higgs' underlying asthma. Correct?
A. Correct.
Q. And you state that he has maintained on a continuous high doses of inhaled steroids, in his case, mometasone?
A. Correct.
Q. And are you aware of from your review of -- well, first of all, you reviewed Mr. Higgs' medical records. Correct?
A. Correct.
Q. Through what date?
A. January 2, 2021.
Q. Well, that wasn't in preparation for your declaration. Right?
A. Correct. Yeah. So that would have been up to, you know, around the date of whenever I filed the declaration, which I believe was shortly -- can somebody tell me when I filed this? Shortly before Christmas?
Q. You signed it December 22, 2020. Does that sound right?
A. Yeah. So I couldn't say for sure. Probably would have been up to the 20th or something. It's confusing because I -- you know, continuously reviewed his records throughout. So it's hard for me to put -- if I could put a placeholder for where my brain was at that time, but it would be somewhat close to that date of when I filed.
Q. Understood. You say on paragraph 12, he has maintained on

mometasone?
A. Correct.
Q. And are you aware, though, that on March 11, 2020, Mr. Higgs reported noncompliance with mometasone?
A. Correct.
Q. And you're aware that during that same report that the medical report stated that his asthma was well controlled with stable peak flows?
A. That's what they stated. I don't agree with it. But that's what they stated.
Q. Well, you didn't examine Mr. Higgs in March 2020, did you?
A. Not that I remember, no.
Q. All right. Also in paragraph 12 -- have you ever examined Mr. Higgs?
A. No.
Q. Also in paragraph 12 you state that he has had asthma exacerbation over the year and has required the use of nebulizer treatment. Correct?
A. That's incorrect. I say he has had asthma exacerbations over the years, plural.
Q. I appreciate that. And has required the use of nebulizer treatments. Correct?
A. And systemic steroids.
Q. And you're aware that the nebulizer treatment -- he used a nebulizer treatment in 2012. Right?

A. Correct.
Q. And he has not used one since. Right?
A. I don't know the answer to that.
Q. In the medical records you've reviewed, you've not seen any indication of Mr. Higgs using a nebulizer since 2012?
A. Correct.
Q. And you're also aware that, as recently as September 11, Mr. Higgs reported that his asthma is fairly well controlled and he can exercise vigorously. Correct?
A. Correct.
Q. Also in paragraph 12 you note that an ultrasound of Mr. Higgs' heart shows significant mitral valve disease with moderate mitral valve regurgitation and trigger leaflet dysfunction. Correct?
A. Let me catch up to you here. "Significant mitral valve disease with moderate mitral valve regurgitation and anterior leaflet dysfunction." Correct.
Q. And you're referring to an echocardiogram that was performed in May 2020? Right?
A. May 26 of 2020. Correct.
Q. And you're aware that Mr. Higgs visited a cardiologist in November 2020. Right?
A. Correct.
Q. And you're aware that that cardiologist reviewed the May 2020 echocardiogram during that visit. Correct?

A. Correct.
Q. And you're aware of that that cardiology, she or 0he noted that the echocardiogram revealed "moderate mitral valve prolapse with moderate mitral regurgitation." Correct?
A. Correct.
Q. And it also says that the ejection fraction at the time was normal. Right?
A. Correct.
Q. And the ejection fraction, that is the amount of blood that leaves the heart. Correct?
A. Not the amount, no. The percentage of what's delivered there that leaves the heart.
Q. Okay. Thank you for the clarification. It also notes that there's no pulmonary hypertension. Correct?
A. Correct.
Q. Hypertension would be high blood pressure?
A. High blood pressure in the lungs, yes, but echo is generally not a reliable assessment of pulmonary hypertension. You generally need a right-heart catheterization to get that done.
Q. That is the assessment that this cardiologist made. Correct?
A. Correct.
Q. You're not a cardiologist, are you?
A. No. No, sir.

Q. And this cardiologist also notes --

THE COURT: Mr. Walker, let me stop you for a minute. Dr. Stephen didn't -- I don't recall that he went over this in his direct examination.

MR. WALKER: Yes, Your Honor. Well, I only have one more question, frankly. But we called Dr. Stephen for cross-examination before plaintiffs called him for direct and so are entitled to cross-examine him on the contents of his declaration, and I'm referring to page 12 of his declaration.

THE COURT: All right.

MR. WALKER: And I do only have one more question.

THE COURT: Okay.

BY MR. WALKER:

Q. And, Dr. Stephen, this cardiologist concluded that from the cardiac standpoint, this gentleman appears to be stable. Correct?

A. Correct.

Q. Thank you very much.

MR. WALKER: I have no further questions.

THE COURT: All right. Redirect. Mr. Kursman?

MR. KURSMAN: Yes.

REDIRECT EXAMINATION

BY MR. KURSMAN:

Q. Dr. Stephen, I just have one question for you. When you use the term "COVID-19 pneumonia," what does that term mean to

you?
A. That means that there is significant inflammation in the lungs that can be picked up either by chest x-ray or CT scan, that there is significant viral replication happening within the lungs actively, and there is significant white blood cell leakage in an attempt to contain these viral particles and that the alveolar capillary membrane has been breached, and the capillary interstitial membrane has clearly been breached. That's the definition of "pneumonia."
Q. Thank you.
MR. KURSMAN: I have no further questions.
THE COURT: All right. Dr. Stephen, thank you very much for taking time out from what I know must be a very extremely busy schedule. You are free to exit the call.
THE WITNESS: Thank you very much, Your Honor. It's really been a pleasure speaking with you.
THE COURT: Have a good day.
THE WITNESS: Take care, now.
(Witness exits call.)
THE COURT: All right. Who's being called next?
MR. KURSMAN: This is Alex Kursman, and I'm just not entirely sure how this is going or what the government wants to do with the next witnesses. I believe we have three witnesses left, if I'm adding correctly.
THE COURT: Three witnesses on the defense side or

three witnesses total? Three witnesses on plaintiffs' side, excuse me.

MR. KURSMAN: No, I apologize. Three witnesses total. So I think we have two left. The government has said that they wanted to cross-examine Dr. Glass.

THE COURT: Well, because these are busy doctors, I have really given the parties leeway as to the order in which they call them, not necessarily as to who's the proponent of the motion. So whoever's ready, I don't want to keep people sitting by the phone when they are busy. So I'm going to leave it up to you all.

MR. KURSMAN: Ms. Lin, is Dr. Antognini ready?

MS. LIN: I believe he's available, and he can go next for you to cross-examine. We do not intend to do any direct examination of Dr. Antognini, but if --

THE COURT: If there's somebody who is waiting who has to go, let's take them. That's why I'm giving you all this leeway, because I don't want to have people sitting around who could be working. So --

MS. LIN: We can have -- I believe Dr. Antognini has a little bit more time later this afternoon. So if Dr. Van Norman would like to go first, we would prefer that.

MR. KURSMAN: Dr. Van Norman has more time on direct. So we would prefer her to go later, especially because she's from the West Coast.

THE COURT: Then let's just -- so we have Antognini, Norman, and who else?

MR. KURSMAN: And the government, I believe, said they intended to cross-examine Dr. Glass, but I'm not sure if that's still their intention based on the partial striking of his testimony.

THE COURT: Ms. Lin, do you still want to cross-examine Dr. Glass?

MS. LIN: Yes. Only very, very briefly.

THE COURT: Is he available, Mr. Kursman?

MR. KURSMAN: I do not know if he's on the phone.

MS. PORTER: This is Ms. Porter. I believe so. We know that he had a conflict from 10:30 to 11:30. I know he joined the call this morning. I believe he has rejoined the call. Dr. Glass, are you on the line?

THE WITNESS: I am.

THE COURT: All right. Good morning, Dr. Glass. Well, let's put you on rather than have you continuing to wait. This is Judge Chutkan. Good morning.

THE WITNESS: Good morning, Your Honor.

THE COURT: Mr. Kursman, Ms. Porter -- I can't remember. Is there going to be a direct, or are we going direct to cross-examination?

MR. KURSMAN: Your Honor, this is Alex Kursman. We're going straight to cross-examination, but Ms. Porter will

be handling his redirect if there is any.

THE COURT: All right. Thank you. All right. Dr. Glass is going to be cross-examined.

Ms. Lin, are you doing that one?

MS. LIN: No. Johnny Walker is.

THE COURT: Okay. Mr. Walker.

Let's have Dr. Glass sworn in.

(Witness Sworn.)

THE COURT: Dr. Glass, this is Judge Chutkan. A couple of things. One, we're on the phone, so it's even more difficult for the court reporter to transcribe. And we're dealing with a lot of medical terminology, so I'm going to ask that you speak as clearly as you can and as deliberately, and maybe slow down if you are a fast talker. I don't know if you are, but to slow down a little bit.

If you have to read something, we all have a tendency to speed up. So if you have to read anything aloud into the record, please slow down. And finally, I don't know how experienced you are in testifying, but because this is being transcribed by a court reporter, you have to give verbal answers such as yes or no. The court reporter cannot transcribe, you know, uh-huh, or something like that.

So other than that, you may proceed, Mr. Walker.

MR. WALKER: Thank you, Your Honor. And I would just like to note for the record that the cross-examination is being

done subject to the government's objection for the reasons stated in the oral motion to strike we made yesterday that Dr. Glass, if the --

THE COURT: The motion is in the record, and I have stricken it with regard to the first opinion.

MR. WALKER: So we maintain our objection to the latter two and also contend that the government is highly prejudiced by being required to cross-examine Dr. Glass on such short notice, to have the opportunity to rebut his new opinion.

THE COURT: Okay. Objection's noted.

MR. WALKER: Thank you, Your Honor.

MITCHELL GLASS, WITNESS FOR PLAINTIFFS, SWORN

CROSS-EXAMINATION

BY MR. WALKER:

Q. Good morning, Dr. Glass. How are you?

A. Good morning.

Q. My name is Johnny Walker. I'm an assistant United States attorney, and I represent the government in this case.

According to your declaration, sir, you are a business executive at several companies. Correct?

A. Correct.

Q. But you are not a practicing doctor, are you?

A. No. I don't practice. Pulmonary critical care analyst.

Q. In fact, you have not held an active medical license since 1990, have you?

A. Since 1995, actually, to be accurate.
Q. My understanding is you have a Pennsylvania medical license that expired in 1990. Is that correct?
A. And a Delaware license that I allowed to expire. I apologize if my CV was inaccurate.
Q. It seems that some other public records that we looked at may be inaccurate as well. So your testimony is that you had a Delaware license that expired in 1995?
A. Correct.
Q. And that is --
A. I needed that in order to teach medical students. I did not use it to practice. I used it to teach medical students in the areas of basically examination of the lungs, pulmonary auscultation, and to teach them respiratory physiology.
Q. I see. So you did not practice under that license.
A. Right. Correct.
Q. In fact, you have not seen a patient as a practicing physician since 1990. Correct?
A. That would be right.
Q. Now, you opine in your declaration that Mr. Higgs' lungs would shut down in less than the one second that it takes pentobarbital to reach Mr. Higgs' blood. Is that correct?
A. Correct.
Q. And when you say his airways would, quote, shut down, are you describing an asthma attack?

A. An acute asthma attack.
Q. And you do not cite a single published study in support of that conclusion. Is that correct?
A. I don't believe I provided references just based upon how tight the time was. But I am recognized as an expert in the diagnosis, treatment, therapeutics, and complications of asthma.
Q. You don't cite a single published study throughout this entire report, do you?
A. Like I say, I do not believe I provided references.
Q. Well, you didn't provide copies, and you didn't cite any reference.
A. I did not provide references, which are readily available.
Q. Well, I'll tell you, you did not cite any references in your declaration. Correct?
A. If I cited them, I would have provided them.
Q. You mentioned a tight turnaround. How tight was your turnaround to prepare this opinion?
A. Less than a week?
Q. Do you know how many days specifically?
A. There are seven days in a week, so I would say somewhere between one and six. I'm sorry. Four or five.
Q. You came to these opinions in four or five days?
A. I came to these opinions upon reading very carefully the entire medical records of Mr. Higgs in the light of my expertise in asthma and pulmonary diseases, including infectious diseases.

That would be right.
Q. And you reviewed the testimony of the other experts that have provided opinions that support Mr. Higgs in this case. Isn't that right?
A. I read those declarations. That would be correct. And then I was provided a certain number of supplemental declarations, which I have also read.
Q. That would include the declaration of Dr. Stephen, wouldn't it?
A. Yes.
Q. And it would also include the declaration of Dr. Zivot. Correct?
A. Correct.
Q. And you're aware that both Dr. Stephen and Dr. Zivot have reviewed Mr. Higgs' medical records, aren't you?
A. Yes.
Q. And they both discuss Mr. Higgs' asthma in their declarations. Correct?
A. Correct.
Q. And Mr. Stephen is a pulmonologist, isn't he?
A. Yes.
Q. But neither of those experts, nor any other experts whose reports you reviewed, expresses the opinion that Mr. Higgs' airways will shut down instantaneously in less than the one second it takes pentobarbital to reach his blood. Correct?

A. The left and right is a reference to pulmonary physiology and the time it would take for an antecubital vein injection to reach his pulmonary vasculature. That's simply a matter of pulmonology 101. The certainty that it would cause his lungs to close down is the reflection of the severity of his asthma and the severity of the insult that will be derived from the massive overdose of pentobarbital reaching his lungs.

Q. I understand your opinion, but my question is, you don't see that precise opinion in the declarations of any other expert in this case, do you?

A. You're asking me to recall?

Q. Yes. Do you recall seeing that exact opinion --

A. No. I don't think that I would recall that either of those physicians would have described the time course in the same way that I would. Correct.

Q. Thank you. I don't have any other question.

THE COURT: Ms. Porter?

MS. PORTER: Yes, Your Honor.

REDIRECT EXAMINATION

BY MS. PORTER:

Q. Dr. Glass, you explained that you don't currently treat patients and haven't treated patients since 1990. Can you explain a little bit about how you do use your medical background in the current work that you do?

A. Certainly. I use my medical background constantly

including in the -- and I apologize for having to take a break -- I am called upon to look at, on a regular basis, novel therapeutics and diagnostics and course-of-disease management in areas of respiratory and other chronic diseases and have been doing so consistently since I joined the pharmaceutical industry initially in 1988, so that if anything I've had to maintain a more than up-to-date perspective on the treatment and diagnosis of disease.

And I would just add to that that while coronavirus -- this particular coronavirus may be novel, my practice days and my days within pharma included the evaluation of other viral diseases, certainly on the front lines when AIDS became an epidemic, and certainly in programs on respiratory interstitial virus which generate a very similar pattern of damage to what we would be seeing with any other viral illness that's causing pneumonitis in the lungs.

Q. And what's your experience with COVID-19 specifically?

A. I was --

Q. Your professional experience, sorry.

A. My professional experience, I have been involved since the very early days in the understanding of what was occurring in Wuhan, and subsequently in China, to experts with whom I deal with in China. Then followed very carefully the development of tests, many of which are subpar, and this has led me to put together a consortium of experts who are in fact managing a test

for exposure to COVID-19 including mutation, including vaccinations so that the United States can finally get a proper handle of the epidemiology of the disease. To that end, we are working in the area of COVID, the area of epidemiology, as well as diagnostic development.

Q. So how often would you say that you're reviewing medical literature or speaking with experts about COVID --

MR. WALKER: Your Honor, I'm sorry. I have an objection. Plaintiff opted not to put Dr. Glass on to qualify him on direct examination. My cross-examination regarding his qualifications was limited to his medical practice. I think this goes beyond the scope of that.

MS. PORTER: Your Honor, if I may?

THE COURT: Yes.

MS. PORTER: I'd like to just respond, because the questions of the government suggested he's not qualified to offer the opinions that he has offered in his declaration, and so I'm just trying to establish that he has expertise in the areas of COVID-19 and asthma.

THE COURT: Well, the government's cross-examination was centered on Dr. Glass's treatment of patients and the last time he treated patients and the last time -- you know, the last time he had an active medical license. I don't believe they asked him any questions about his experience with COVID, so I think it is beyond the scope of the cross-examination.

MS. PORTER: Okay, Your Honor.

THE COURT: Okay? And they didn't object up to then. You've certainly got his experience with COVID into the record. And I allowed it because there was no objection, but I agree with Mr. Walker that it's going kind of far afield; and you had elected not to put him on for direct.

MS. PORTER: May I ask him one last question about his experience?

THE COURT: One last question.

MS. PORTER: Thank you, Your Honor.

BY MS. PORTER:

Q. Dr. Glass, are you still currently active in any professional associations related to the treatment of lung disorders?

MR. WALKER: I'm sorry, Your Honor. I just have to note for the record an objection based on the -- as Your Honor just noted --

THE COURT: I note your objection but actually think this question is relevant to your cross-examination. So I'll allow it.

THE WITNESS: I've been an active member of the American Thoracic Society, which is the professional society for experts in pulmonary disease, for over 35 years; and a member of leadership councils in the American Lung Association going back to 1982, both at the local level and at the national level.

THE COURT: All right. Thank you.

BY MS. PORTER:

Q. Now, moving on to some of the other questions the government's attorney had for you, you mentioned in your responses that you didn't cite any references to medical literature in your declaration. Did you review any medical literature when you were preparing your declaration?

A. Yes. I reviewed hundreds of papers. I created a list, and I was remiss in not adding it to my declaration.

Q. Thank you, Dr. Glass. And did you review any of the references cited in some of the other doctors' declarations that you saw, you know, Dr. Locher, Dr. Van Norman, the other references that you reviewed?

A. I had previously reviewed a number of those and did review a number of the more recent publications that were cited. It's challenging to -- because of the nature of COVID, it is challenging to draw major conclusions from articles that were published as early as April.

MR. WALKER: And, Your Honor, this is Johnny Walker. I have to object to this. Not only does the declaration come in at the 11th hour, but Dr. Glass is now revealing that he relied on hundreds of --

THE COURT: Yeah. I have to tell you, that's very concerning, Ms. Porter. I mean, the government -- you know, you give them the declaration late with a new witness, and he's

cross-examined about what he did to prepare and the references he used, and he doesn't mention these hundreds of references until redirect. I'm very concerned about this. Is there -- you know, he said he was remiss in not attaching it, but you understand that the government is prejudiced by learning about this in redirect.

MS. PORTER: Certainly, Your Honor. My understanding is that when Dr. Glass was preparing his declaration, he did, you know, a literature review, as I assume the other experts have, and looked at all this information and picked out the things that were -- you know, the pieces of information that were most relevant. And again, I apologize for not --

THE COURT: Well, he was asked about it on cross-examination and didn't mention it. And he just mentioned it for the first time on redirect, and I'm assuming the government -- he said he was remiss in not attaching it to his declaration. Well, where is it?

MS. PORTER: Well, Your Honor, if I may, I believe that the question he was asked on cross-examination was --

THE COURT: Well, no. I'm going to stop you. I'm going to stop you.

MS. PORTER: Sure.

THE COURT: Ask the witness. I want this on the record.

MS. PORTER: Okay. Ask the witness -- I'm sorry.

THE COURT: Whatever you're going to proffer, it needs to come from the witness. I'm concerned about this, and so I don't want -- the witness is on the phone. You know, I'm not able to take a sidebar here. So if you want to clear this up, I suggest you do it through the witness's testimony regarding these references.

MS. PORTER: Your Honor, we're satisfied with what's on the record currently. I don't need to --

THE COURT: Well, I'm not satisfied with what's on the record currently, Ms. Porter. Your witness testified on cross-examination by the government that there was a short-time turnaround and that he didn't put any references in his report. And on redirect, he says he reviewed, as I recall, hundreds of sources or something and neglected to attach that as an addendum to his declaration.

So I think Mr. Walker is rightfully concerned about his ability to effectively cross-examine, given that he's now hearing in redirect that there's a reference sheet or something. So I'm going to allow Mr. Walker a chance to -- well, Mr. Walker, what are you asking for?

MR. WALKER: Your Honor, I want to renew our motion to strike Dr. Glass's declaration.

THE COURT: I'm going to consider this. I mean -- well, let me ask the witness, because this is a hearing for my edification.

Dr. Glass, Mr. Walker asked you on cross-examination about what references you used and whether you included any references in your report. Did you remember that question?

THE WITNESS: I remember the second half of the question, Your Honor, which is what references did I include in my report. If he had asked me the question that you just phrased, then I misunderstood it. I absolutely used references to prepare my report. I did not include them in my report.

THE COURT: Why not?

THE WITNESS: Strictly a function of time pressure.

THE COURT: Did you prepare a list or compile a list of the references you used in preparing your report?

THE WITNESS: I did. They're right in front of me.

THE COURT: And did you provide that list to Ms. Porter or Mr. Kursman or counsel for the plaintiff in this case?

THE WITNESS: Not to anyone, no.

THE COURT: Where is that list?

THE WITNESS: Sitting on my computer.

THE COURT: Were you asked for it by any -- by either Mr. Kursman or Ms. Porter or anyone on plaintiffs' team?

THE WITNESS: No, Your Honor. I wasn't asked for it. If I can just speak to Your Honor, it would have been my practice to include a set of references against every statement that I made, and it was simply a function of time to get

something back by, I guess it was Sunday midnight.

THE COURT: Well, it's Tuesday today, Doctor, and you still haven't provided that to anyone.

THE WITNESS: As I said, I have not been asked for that by anyone, but if the question from Mr. Walker had been did I use references, then I misunderstood that question.

THE COURT: When was the last -- have you testified as an expert previously?

THE WITNESS: Many times.

THE COURT: And when was the last time you testified as an expert?

THE WITNESS: Turns out to be 2016.

THE COURT: And is it your practice when called to testify as an expert to provide a list of the references to which you consulted as part of your testimony?

THE WITNESS: Always.

THE COURT: I'm sorry?

THE WITNESS: Always.

THE COURT: And so why did you not do this on this occasion?

THE WITNESS: In order to get the declaration from me to counsel, in order to provide it in the time frame that I was provided, as I say, I would typically have listed the references by number where they fit. I did not have time to execute on that. So what I have is a list of references.

THE COURT: All right. Dr. Glass, I'm going to ask you to send that list of references to Ms. Porter now.

And, Ms. Porter, I'm going to direct you to share it with counsel for the government now. Have you completed your redirect, Ms. Porter?

MS. PORTER: Yes, Your Honor. And I apologize again. It was my understanding that --

THE COURT: Okay. What I'm going to ask Dr. Glass to do is to now sign off and to prepare to -- if necessary, Ms. Porter, I'm going to ask you to let him know that we may have to recall him depending on how I rule, and then I will talk to the lawyers about the government's renewed motion to strike.

MS. PORTER: Yes, Your Honor.

THE COURT: Dr. Glass, thank you for your testimony today. You may be asked to -- I'm sorry?

THE WITNESS: I had a request. I just was --

THE COURT: Who's speaking?

THE WITNESS: Sorry?

THE COURT: Is this Dr. Glass?

THE WITNESS: Yes.

THE COURT: Yes?

THE WITNESS: I just wanted to understand if the court reporter had captured Mr. Walker's question as I heard it or as you repeated it.

THE COURT: I have access to that, Dr. Glass. I will

check it. The court reporter captured everything that has been said. So there is a transcript of this proceeding. And so what I'm going to ask you to do is to exit this call. Ms. Porter will let you know if we need you again, and I have to deal with a legal ruling. All right?

THE WITNESS: Thank you.

THE COURT: Thank you.

THE WITNESS: Bye-bye.

(Witness exits.)

MR. WALKER: And, Your Honor, this is Johnny Walker. If I may just note that our motion to strike would cover both Dr. Glass's report as well as the substantive answers --

THE COURT: I have to say I remember distinctly Mr. Walker's question to Dr. Glass, and it's true that he did not ask him if he made a report, because I think Mr. Walker would be rightfully assuming that if such a report or list was compiled that he would have it. And so, therefore, Mr. Walker was relying on the fact that he did not have such a report, and there were no references listed in Dr. Glass's report.

Am I right, Mr. Walker? Hello? Hello?

MR. KURSMAN: I'm here, Your Honor. This is Alex Kursman.

MS. LIN: I don't know what happened. This is Jean Lin.

THE COURT: All right. You know what, let's --

MR. KURSMAN: Your Honor? This is Alex Kursman for plaintiffs' counsel. Could I just say a few things?

THE COURT: Well, I don't want you saying anything until Mr. Walker -- hold on. This is Mr. Walker's witness. I don't want you to make any representations if Mr. Walker isn't on the call. Mr. Walker, are you on the call?

MR. WALKER: I was briefly not on the call, but I'm back, Your Honor. Thank you.

THE COURT: Okay. Mr. Walker -- Mr. Kursman, I'll get to you in a minute.

Mr. Walker, I was saying that I distinctly remember the question that you asked Dr. Glass about his references, and you did not ask him if he compiled a list of references that he consulted, and I'm assuming that was because you had not been provided one. And I remember his answer was that he did not include any references in his report. Am I correct in my recollection of the question?

MR. WALKER: That's the way I recall phrasing my question, Your Honor.

THE COURT: Mr. Kursman, I can tell you this very frankly. If this had happened to you, you would be moving to strike.

MR. KURSMAN: Your Honor --

THE COURT: There's no way -- I mean you don't even have this.

MR. KURSMAN: You're right, Your Honor. So could I briefly respond?

THE COURT: Yes. Well, wait. Let me stop you for a second. Mr. Walker, have you completed -- have you made the record on your motion to strike?

MR. WALKER: Yes, Your Honor. All I wanted to say is that I would expect that an expert in their report, especially one who's disclosed on us at the very last minute, Sunday night, the night before this evidentiary hearing was to begin, would disclose the basis of their opinions in the report.

THE COURT: I have -- no. Go ahead. You are right. I'm stunned myself.

MR. WALKER: And my question to Dr. Glass that he cited no medical studies in his report I assume would show, if he had done the report properly, that he relied on no medical studies in forming his opinion.

THE COURT: And the fact that he does but has a list, you know, that he's given to no one, including the side that is calling him, and didn't turn it over because of the exigency of the short turnaround, when that was Sunday night and it's Tuesday, I don't find credible.

But let me hear you, Mr. Kursman.

Mr. Walker, did I let you finish?

MR. WALKER: Yes, Your Honor. Thank you.

THE COURT: Okay.

MR. KURSMAN: I agree completely with Mr. Walker. When an expert provides a report and relies on references, there is no question those references should be disclosed. I want to note for the Court that Kendall Von Crowns, who testified yesterday, provided three or four declarations, and in his testimony he talked about studies which he relied on. Even yesterday he told Ms. Lin about a study he relied on. He has never provided us with any --

THE COURT: Did he --

MR. KURSMAN: -- references --

THE COURT: Well, first of all, did he compile a list of references that he didn't give to anybody? Because I can take that fact in weighing the strength of Dr. Crowns' testimony.

MR. KURSMAN: No, Your Honor. I completely agree with you. The second point I was going to make is that we don't need Dr. Glass's testimony at all to prove our case. And based on the fact that he has alleged that -- even we were unaware of it. We would not oppose both his testimony and declaration being struck from the record. Because, believe me, we are just as shocked as you are.

THE COURT: Yes. I have to say, I'm mindful that the time was short on both sides. I'm willing to stretch the rules of evidence for purposes of trying to get as much information before the Court, before me as possible, and people have been cooperative about this. But I have to say I'm taken aback by

this, and I don't find -- I don't know why he didn't turn over the list of references to you or mention it in his cross, but I don't find his explanation for that to be particularly compelling. And so I'm going to grant the government's motion to strike both the testimony and the declaration of Dr. Glass. So let's move on.

MR. KURSMAN: Does Your Honor want us to call more witnesses, or would you like to take a break?

THE COURT: Let's take a break. Fifteen minutes.

Mr. Kursman, other than Dr. Van Norman being on the West Coast --

MR. KURSMAN: Your Honor, we can call her first, but I want to remind Your Honor that you have never actually heard from Dr. Van Norman.

THE COURT: I thought I had.

MR. KURSMAN: They decided not to cross-examine her.

THE COURT: Oh, maybe because I read her report so many times. Okay. Let's call Dr. Van Norman next. Recess until 12:40.

(Recess from 12:25 p.m. 12:44 p.m.)

THE COURT: All right. Good afternoon, everyone. Are we ready to proceed?

MR. KURSMAN: Yes, Your Honor. This is Alex Kursman. Plaintiffs are ready to proceed.

THE COURT: Okay. And you are calling Dr. Van Norman?

MR. KURSMAN: That's correct, Your Honor.

THE COURT: Okay. You may call --

MR. KOSSAK: Your Honor, this is Jonathan Kossak on behalf of the government. I will being cross-examining Dr. Van Norman.

THE COURT: Okay. Thank you. You'll be doing -- is there going to be direct, or are we going straight into cross-examination?

MR. KURSMAN: There's going to be direct, and I'll be handling it.

THE COURT: Okay.

Dr. Van Norman, good morning. This is Judge Chutkan.

THE WITNESS: Good morning, Judge.

THE COURT: Thank you for taking time out of what I'm sure is a very busy schedule for this case. Mr. Bradley is going to swear you in.

A couple of things before you're sworn in, because this is an evidentiary hearing like any other court hearing, with the exception being that it's on the telephone. It is being transcribed by a court reporter, so I'm going to ask that you speak probably a little slower than you normally would in conversation so that the court reporter can get down everything that you're saying.

Please give verbal answers such as yes or no, because the court reporter cannot transcribe uh-huh or mm-hm. And also, if

you have to read anything, we have a natural inclination to speed up when we read, so I'm going to ask that if you read any material, you take pains to slow down a bit. All right?

THE WITNESS: I'll do my best, Your Honor.

THE COURT: All right. Thank you.

All right. Mr. Kursman, you may proceed.

GAIL VAN NORMAN, WITNESS FOR PLAINTIFFS, SWORN

DIRECT EXAMINATION

BY MR. KURSMAN:

Q. Good afternoon, Dr. Van Norman.

A. Good afternoon. Actually, good morning here.

Q. Oh, I apologize. What is your profession?

A. I'm a professor of Anesthesiology and Pain Medicine at the University of Washington in Seattle, Washington.

Q. Are you familiar with COVID-19?

A. Yes, I am.

Q. And can you describe for the Court how you're familiar with COVID-19?

A. Well, apart from the fact that you almost can't be a physician in this environment and not at least know about COVID-19 -- let me say as an aside, you may hear me cough a little bit myself this morning, but I don't have COVID; I just have some allergies. So I apologize for that.

Apart from the fact that it's something that every healthcare worker has heard about, in particular, we are a

major medical center in Seattle in King County, which has been a [indiscernible] of COVID in Washington State and on the West Coast. In fact, we experienced what was thought to be the very first cases of COVID in the United States.

And I personally have taken care of patients early in the pandemic who needed airway management and diagnoses during the COVID pandemic, and we're actively involved in perioperative care of patients who have COVID infections.

Q. Have you administered anesthesia on any patients with COVID-19?

A. I have, although I'll admit it's not for the last six months. I myself am at risk of factors to have a bad outcome if I contract COVID-19. So in June I stopped doing O.R. anesthesia until I could get vaccinated and will rejoin the operating room, probably in March, since I started my vaccine program.

Q. Can you explain for the Court how COVID-19 affects the lungs?

A. Well, COVID-19 has a number of effects on the lungs. The tracheal, the bronchials, but also interstitially, which means the tissues between the air-containing spaces that causes grave inflammation. It has effects in the blood vessels in the lungs, causing blood clots and raises blood pressure in the lungs.

But probably the most relevant effects to this particular discussion of COVID-19 is that it disrupts the alveolar capillary membranes. That's the division between the blood

that carries oxygen from the lungs and the alveoli, which are the air-containing spaces that collect oxygen and distribute it to the blood. So the membranes between those two areas are severely disrupted by COVID-19 infection in the lungs and is a hallmark of COVID pneumonitis or pneumonia.

Q. In your opinion, does a diagnosis of COVID-19 affect how a prisoner will respond to the administration of 5 grams of pentobarbital?

A. In my opinion, it absolutely will affect the response. Yes.

Q. Why?

A. Well, pentobarbital is a highly caustic chemical that in the federal execution protocol will be delivered in high concentration. It's injected as quickly as possible, and it's injected as a massive overdose. The pH of the chemical is very basic. When it contacts tissue normally, it causes a chemical burn, but in this high concentration, when it's flowing through the lungs, it will cause a chemical burn starting with the capillary side of the membrane.

Barbiturate poisoning is known to do this and to act specifically at the alveolar capillary membrane to disrupt it. So a prisoner who has a preexisting disruption of that membrane to begin with will be more sensitive and have much more disruption more rapidly and potentially at lower doses of pentobarbital than someone who does not have that effect as

a pulmonary capillary membrane.
Q. Can you explain what happens to the pentobarbital once it's injected into an inmate's vein?
A. Well, I think there's been an impression that everything happens in the body all at once. But really, when an injection occurs, the chemical enters the bloodstream on the venous part of the heart; it flows first to the right side of the heart where it's distributed first to the pulmonary capillary bed.
That blood is then collected and flows via the pulmonary vein into the left atrium and left ventricle of the heart, after which it is pumped out to the rest of the body including the other organs, including the brain. So the arrival of pentobarbital occurs in the pulmonary capillary bed before the chemical starts to flow to the brain.
Q. So, before you mentioned that COVID-19 damages the alveolar capillaries. Are those alveolar capillaries, are they located in the lungs?
A. Yes. They are part of the several different types of tissues that are included within the organ of the lung.
Q. And what is your opinion as to what will happen once pentobarbital, a 5-gram dosage of pentobarbital mixed in the blood, reaches those alveolar capillaries in COVID-19?
A. It's my opinion that it will cause immediate caustic injuries to the blood vessels, to the capillaries and the lungs even earlier in the injection than previously, because

it will take less of the pentobarbital to cause this kind of damage, and that it will occur earlier in the injection and therefore even earlier before brain levels of pentobarbital are starting to rise.

Q. What is your opinion on whether the inmate will be insensate during the execution?

MR. KOSSAK: Objection, Your Honor.

Your Honor, I'm sorry. I object to this line of questioning about awareness versus responsiveness, which is a topic that has been discussed and is not COVID-related.

THE COURT: Sorry. I'm going to give you some leeway, Mr. Kursman, but this is an as-applied challenge, and so you really need to get to the -- I've reviewed Dr. Van Norman's prior declarations on this topic generally.

MR. KURSMAN: Your Honor, this is only one question to then transition back into --

THE COURT: Okay. Go ahead. All right.

BY MR. KURSMAN:

Q. Dr. Van Norman, what is your opinion on whether the inmate will be insensate during the execution?

A. Well, it's my opinion that the inmate is virtually certain to be sensate during parts of the execution that include the stages in which the lungs are flooding with fluid due to prior damage with COVID-19, and then the application of pentobarbital on top of that damage.

So the lung damage occurs early, the pentobarbital arrives in the brain even later. Even if the pentobarbital is capable of making an inmate insensate, which, as you know, I dispute, there would be a much longer period of time in which the inmate would be experiencing flooding of fluid into the lungs and experiencing sensation of drowning and suffocation.

Q. So let me back up a bit. You've reviewed Dr. Antognini's declaration in this case. Right?

A. I've reviewed them all, but he has several. So if you're going to ask me about them, I'll need a specific one.

Q. Sure. I'm only going to ask you, you're aware that he claims that it's his opinion that the inmates will be -- and he uses the term, quote-unquote, unconscious during these executions. Right?

A. I'm aware --

Q. And I don't -- right. Okay. Now, even if he is correct, and even if he is using the term "unconsciousness" to mean "insensate," which I know you disagree with, would patients with a COVID-19 diagnosis still suffer the experience of flash pulmonary edema?

A. Yes. It's virtually -- it's certain that they will experience flash pulmonary edema, and it's especially certain that they will have a longer period of time in which they experience it, because their lungs have been already subjected to damage that allows the pentobarbital to act more quickly at

the lungs to produce flash pulmonary edema.
Q. And will the action of pentobarbital in the lungs occur before it reaches the brain?
A. Yes.
Q. And I know you've seen -- well, let me ask you this: Have you seen reports that pentobarbital has an onset time of anywhere from 30 seconds to a minute? Have you seen that?
A. I have seen that. In fact, some textbooks indicate that pentobarbital onset is anywhere from 30 seconds to two and a half minutes.
Q. But time of onset certainly doesn't mean that the patient or inmate will be insensate. Right?
MR. KOSSAK: Your Honor, I'm going to object to this again. This onset-time issue is not part of Dr. Van Norman's COVID-related declaration.
THE COURT: Yeah. Mr. Kursman, you need to move on. You said you were going to segue into another subject, and you haven't.
MR. KURSMAN: No, I think I am, Your Honor. I'm asking Dr. Van Norman about COVID-19. She's saying it happens quicker, so I'm just trying to establish that even if the onset of action occurs within 30 seconds to two and a half minutes, that that doesn't mean that the prisoner is insensate or unconscious. So the flash pulmonary edema that they're experiencing quicker because they have --

THE COURT: But I haven't heard you bring up COVID-19 -- I'm sorry. Maybe I haven't been listening carefully enough, but it seems you are asking her general questions about whether an inmate is insensate or not and how long after the injection. Maybe I missed that, but I did not hear you ask her any questions specific to COVID-19 on that topic.

MR. KURSMAN: I apologize, Your Honor. I think the last question I asked was, even if Dr. Antognini is correct, would patients with a COVID-19 diagnosis still suffer the experience from flash pulmonary edema, and I believe that's what Dr. Van Norman was --

THE COURT: Okay. Then I'll overrule the objection.

BY MR. KURSMAN:

Q. So, Dr. Van Norman, the onset time in the brain, when these textbooks talk about the onset time, does that mean that time that the patient or prisoner will be insensate?

A. No. That refers to, in general, when the very first effects of a drug are seen at its onset. It is at the peak levels, for the peak effective levels that we talk about, peak clinical effects. And that occurs later than the onset, the clinical effect.

Q. Now, as part of your preparation for your testimony today, did you review Dr. Antognini's December 30, 2020, declaration?

A. I did, yes.

Q. And do you have that in front of you?

A. Hang on one moment. I have to reach across the table to get it.
Q. Sure. Take your time. And for the Court's reference, that would be ECF document 380-2.
A. Yes. I have it in front of me now.
Q. Okay. Can you take a look at paragraph 3?
A. Paragraph 3?
Q. Yes.
A. Yes. I have it in front of me.
Q. And do you see at two lines up on page 1, the second to last line on page 1 of paragraph 3, "The conclusion that Higgs and Johnson would have increased risk of pulmonary edema is entirely speculative. Neither Dr. Van Norman nor Dr. Stephen has provided any evidence that asymptomatic or mildly asymptomatic COVID-19 patients have increased propensity for pulmonary edema when administered lethal doses of pentobarbital." Do you see that statement?
A. I do.
MR. KOSSAK: I would object, Your Honor. The counsel probably accidentally misread the statement.
MR. KURSMAN: Oh, I apologize. Could I read it again? If I did, I apologize.
MR. KOSSAK: The only thing that I noted was that you said "mildly asymptomatic" when it say says "mildly symptomatic."
MR. KURSMAN: Oh, you're right. I apologize. Let me

read it again, and thank you for correcting me.

BY MR. KURSMAN:

Q. It says, "The conclusion that Higgs and Johnson would have increased risk of pulmonary edema is entirely speculative. Neither Dr. Van Norman nor Dr. Stephen has provided any evidence that asymptomatic or mildly symptomatic COVID-19 patients have increased propensity for pulmonary edema."

Do you agree with that?

A. I think that the -- there certainly is scientific evidence that pentobarbital administration increases propensity for pulmonary edema and that pentobarbital potentiates the effects of other toxins in the lungs in doing so.

I admit that nobody that I know of in the world has administered massive overdoses of intravenous pentobarbital to COVID-19 patients -- because it would be unethical to do so. And so asking for a specific scientific study of what would happen with pentobarbital in COVID-19 patients is obviously an oxymoron.

What I will say is that there's plenty of scientific evidence that when two toxins hit the alveolar or capillary membranes, pulmonary edema happens more quickly. And there's a specific study in rats that says if you give barbiturates before giving the pulmonary toxin bromobenzene, that rats develop pulmonary edema much more severely, much more quickly.

So there is scientific evidence, but we can't provide

the specific instance of giving massive overdoses to COVID-19 patients because it simply has not been done.

MR. KOSSAK: Your Honor -- excuse me, Mr. Kursman. Your Honor, I would move to strike that testimony about the study on rats, that discussion of literature, to the extent that Dr. Van Norman has not cited it in her declaration.

THE COURT: Mr. Kursman?

MR. KURSMAN: Your Honor, this is just responsive to what Dr. Antognini has cited. I'm just asking her opinions about what Dr. Antognini has cited in his declaration.

THE COURT: But she provided a declaration. Did she not provide a declaration in response to Dr. Antognini?

MR. KURSMAN: No, she did not.

THE COURT: He provided one. Okay. I'll allow the question, and obviously Mr. Walker can probe further in cross-examination.

MR. KOSSAK: Sorry, Your Honor. It's Jonathan Kossak, not Johnny Walker.

THE COURT: Oh, I'm sorry. If you could just say your name when you speak, it would help me to remember, and also help the court reporter who may not be able to distinguish between the voices either.

MR. KOSSAK: Of course, Your Honor.

THE COURT: All right. Go ahead, Mr. Kursman.

BY MR. KURSMAN:

Q. Dr. Van Norman, you mentioned two toxins. What were the two toxins in this case?

A. Well, I mentioned there are -- I actually mentioned two different processes. We know that from other kinds of toxins that when two toxins -- different toxins that attack the alveolar capillary membrane are administered, they can potentiate one another and make the damage more rapid and worse.

The classic medical example of this is bleomycin and high concentrations of oxygen. Neither chemical on its own tends to produce lung damage and pulmonary edema. But if you give bleomycin and then give high oxygen concentrations afterwards, you make it much more likely that pulmonary edema and severe damage will occur.

And this is so well known that in anesthesiology we avoid giving anything but [indiscernible] we can to patients who have received bleomycin therapy because we know we can reproduce this effect more readily.

MR. KOSSAK: Your Honor, I apologize. I would have to move to strike the testimony again. It's totally brand-new information. It's not provided to the government. It's impossible to do cross-examination on medicine and studies that have not been set forth in a declaration.

MR. KURSMAN: Your Honor, if I could just instruct the witness so that we don't have to deal with this back and

forth.

BY MR. KURSMAN:

Q. Dr. Van Norman, when you were responding to my questions --

MR. KOSSAK: Your Honor, I have a pending objection, a pending motion to strike that testimony.

(Silence.)

I'm sorry. I can't hear the Court. Is anybody else able to hear?

THE COURT: Can you hear me now?

MR. KOSSAK: Yes.

THE COURT: It was me. I think I was accidentally muting myself. Okay. I'm going to sustain the objection. I'm denying the motion to strike. Mr. Kursman, please focus your questions specifically on the portions of Dr. Antognini's declaration that you wish Dr. Van Norman to address so we don't have this wide-ranging discussion. Okay?

MR. KURSMAN: Sure. And could I just -- to avoid some of these objections, could I just quickly instruct Dr. Van Norman that when you're responding, if you cite to any references, just make sure those are references that you've used in the past and have had opinions about those in prior declarations.

THE WITNESS: Will do.

THE COURT: Well, you can't -- I'm not sure you can do that, because she may have an answer that involves references

that aren't included, and that's where we have a problem. So I'm just going to ask you to confine your questions to the specifics. That will make it easy for me to rule on objections, if you're directing the witness to the assertions made in Dr. Antognini's declaration. Okay?

MR. KURSMAN: Sure. I apologize for that one.

BY MR. KURSMAN:

Q. Now, in paragraph 4, Dr. Van Norman, you see where Dr. Antognini says, "Dr. Van Norman writes 'COVID-mediated pulmonary damage occurs at the alveolar capillary membrane, which will then be more sensitive to barbiturate damage, leading to flash pulmonary edema earlier in the injection process and before the peak levels of barbiturates are achieved.' But she provides no published evidence that such purported pulmonary damage increases the risk of pulmonary edema formation from pentobarbital, i.e., her opinion, at its foundation, is speculative."

Do you see that statement?

A. I do.

Q. Do you have an opinion about that?

A. Well, again, the statement -- again, we cannot provide direct evidence from COVID-19 patients being injected with lethal doses of pentobarbital, because it would be unethical to do that. But once you damage a lung with an agent or toxin, if you give a barbiturate, the damage becomes rapidly more

expansive.

THE COURT: Let me stop you. Okay. I'm going to interject here because I can see Mr. Kossak is going to object.

Dr. Van Norman, you say there's published literature. Is this published literature that you have previously cited in your other reports that you've provided to the Court.

THE WITNESS: No, Your Honor, because I wasn't asked that specific question. I'm trying to respond to Dr. Antognini's implication that there is no evidence.

THE COURT: All right. Well, Mr. Kossak, you can probe this in cross-examination.

MR. KOSSAK: Your Honor, if I may, I cannot probe this information in cross-examination without having any notice of it. I mean --

THE COURT: Well, she's responding -- we would have an endless back-and-forth of declarations. You provided a declaration from Dr. Antognini responding to her declaration. And so she's testifying in response to Dr. Antognini's criticism of her declaration.

Now, she says there's literature. You can ask her. But what you're saying is she's not allowed to respond to that criticism unless she previously cited published reports. I don't think that's correct.

MR. KOSSAK: Your Honor, with all due respect, I hear what you're saying, but they had the opportunity to

file a reply --

THE COURT: And then you would have asked for Dr. Antognini to -- I mean at some point cross-examination is there for a purpose. All right? You can't submit a declaration criticizing her declaration and then say, well, she's not allowed to say why she's right if she cites anything that we don't already have. That's basically what you're saying.

MR. KOSSAK: Well, no, Your Honor. I hear what you're saying, and I think that what you're saying is fair. I'm just saying to the extent that she's relying on literature or studies that I've not seen before, I'm essentially in the same boat as we were with Dr. Glass.

MR. KURSMAN: That's disingenuous, Your Honor. All Dr. Van Norman right now is responding to is a critique by Dr. Antognini saying that she provides no published evidence of such purported pulmonary damage increases risk of pulmonary edema. And all she responds is, well, we don't have that testing.

THE COURT: Right. But, Mr. Kursman, then she goes on to say there are other published reports about the effect of toxins. I have to tell you, as a person who has to assess this testimony, this is not fantastically helpful to me, this line of questioning. I've reviewed many declarations from both these witnesses, so I really -- this is an as-applied challenge. I really would like you to get to specifics.

MR. KURSMAN: Sure. And I'm trying to get to all of Dr. Antognini's COVID critiques, so let me see if I -- I obviously want to be helpful to Your Honor, so let me see if I can do it in a way that is helpful to Your Honor. I apologize.

THE COURT: Thank you.

MR. KURSMAN: So let's go to paragraph 5.

THE COURT: And, Mr. Kursman, if we agree that everybody has the paragraph in front of us, you don't need to read the whole paragraph. You can direct her to a specific phrase, or you can just say has she read the paragraph, because I have it in front of me.

MR. KURSMAN: Okay. Okay, great.

BY MR. KURSMAN:

Q. So I'm going to read the first sentence. It says, "Drs. Van Norman and Stephen do not provide any specific time frame regarding the onset of pulmonary edema that might occur in an individual who has suffered lung damage from COVID-19."

Did you provide a specific time frame?

A. Well, I provided the specific time frame to deal with pentobarbital onset and said that that was within minutes, and that COVID-19 infection would lead to onset of pulmonary edema within seconds.

And I also said that one of the differences I'd like to point out is that I said that pulmonary edema can happen instantaneously. But what my opinion is is that with COVID-19

infection, due to the synergistic effects at the pulmonary capillary membrane, that pulmonary edema will begin to happen instantaneously.

Q. And then right after that, he said, "Previously Dr. Van Norman has stated that under other circumstances (i.e., in the absence of COVID-19) pulmonary edema onset can be 'virtually instantaneous' (paragraph 67 of her 11-1-2019 declaration.) If that is so, then it's unclear how COVID-19 (or any other disease process for that matter) would increase that onset."

Can you explain to the Court how COVID-19 would increase the onset?

A. Yeah. What I just said in my previous declaration in 2019, I was indicating what is possible. It's possible for pulmonary edema to happen instantaneously, and I believe I cited some references and experience to back that up.

What I'm saying here is not this is what's possible. This is what will happen with COVID-19, because now you have the collateral damage of the virus already causing leaky membranes, and now the pentobarbital is going to cause that leak to turn into a flood. So it will increase -- it increases the -- it increases from possibility to what's going to happen.

Q. And now, if we go to the next sentence --

THE COURT: Are we still on paragraph 5?

MR. KURSMAN: We are. And I'm sorry, I got a bit lost.

BY MR. KURSMAN:

Q. "Dr. Van Norman does not provide any evidence to show that pulmonary edema will occur faster for inmates with COVID-19, or how much faster, assuming pulmonary edema even occurs antemortem in the execution setting."

Is there a reason why you didn't provide any direct evidence that COVID-19 will cause pulmonary edema faster with an injection of 5 grams of pentobarbital?

A. Well, again, we don't have any medical studies of giving lethal doses, massive overdoses of pentobarbital, to COVID-19 patients. So it's impossible to cite such a study.

Q. And what about where Dr. Antognini says "assuming pulmonary edema even occurred antemortem." What is your opinion on that?

A. Formation of pulmonary edema requires the presence of a beating heart. Pulmonary edema does not happen after death.

This has been admitted in the defendant's own -- by the defendant's own witnesses and also has been attempted in pathologic studies of lungs postmortem. So in order to generate pressure to push fluid into the lungs, you need a beating heart. Pulmonary edema does not occur after death.

Q. Now, can we go to the last sentence in paragraph 5, and let me know when you're there.

A. I'm there.

Q. Do you see where Dr. Antognini states, "And, when peak brain levels of pentobarbital occur 1-2 minutes after

administration, the inmate has profound brain depression."
Do you see that?
A. I do.
Q. Do you have an opinion on that?
A. I have the opinion that Dr. Antognini has not offered any contemporary scientific evidence that that, in fact, occurs. There were no monitors that can demonstrate whether consciousness is suppressed and brain depression has occurred at this point. So asserting that peak brain levels of pentobarbital occurring two minutes later are associated with brain depression is not supported by -- is not supported by contemporary literature.
Q. Now I'm going to read you the entirety of paragraph 6, because the whole --
THE COURT: Well, Mr. Kursman, why do you have to read it? Can you ask her to read it? I can read it.
MR. KURSMAN: Sure. Sure.
BY MR. KURSMAN:
Q. Could you read paragraph 6 of Dr. Antognini's declaration?
A. I apologize. Are you asking me to read it?
THE COURT: Yes. If you could read paragraph 6.
THE WITNESS: You want me to read it out loud?
MR. KURSMAN: No, I'm sorry. Just to yourself.
THE WITNESS: Give me a moment to read through it to make sure that I have the sentences clear in my mind.

THE COURT: Take your time, Dr. Van Norman, and let us know when you're done.

THE WITNESS: Thank you so much.

(Witness reviewing document.)

THE WITNESS: Okay.

BY MR. KURSMAN:

Q. Can you explain to the Court what you meant when you opined on oxygen saturation levels in your declaration prepared for these pleadings?

A. Certainly. What I was trying to explain to the Court is that oxygen saturation is not of the direct measure of oxygen in the blood. That's something called the partial pressure of oxygen. Oxygen saturation can decline slowly while the actual levels of oxygen in the blood are declining quite rapidly.

For example, when he says "a change from 99% to 97% *is small,* so interpretation is fraught," well, the change from 99 percent saturation to 97 percent saturation represents an almost 20 percent loss of oxygen from the blood. The PaO_2 is declining much more, from about 110 to 90.

What I was trying to say is that you can't look at a small change in oxygen saturation and interpret that it means there's a small change in blood oxygen partial pressure. In fact, in anesthesiology, the oxygen saturation monitor is a late monitor. That means, once we start to see changes, we know the blood has already lost a lot of oxygen and that we must act, even while

the saturations may remain in normal range.
Q. And if somebody's oxygen saturation levels are low, how does that affect the occurrence of flash pulmonary edema?
A. Well, that wasn't the -- let me back up. I'm not sure I understood your question properly. Can you say it again for me?
Q. It's okay. I'll strike that question. Let me take you to paragraph 9, just the final conclusion in Dr. Antognini's report. If you see it, it starts with 2), and it's just one sentence. It says, "Dustin Higgs and Cory Johnson are not at increased risk of developing pulmonary edema from pentobarbital prior to the onset of consciousness." Do you see that?
A. I do.
Q. Do you agree with that?
A. I do not.
Q. Can you tell the Court why?
A. Well, first of all --
MR. KOSSAK: Your Honor, I would object that this question has been asked already.
THE COURT: Overruled.
THE WITNESS: Thank you. First of all, I disagree that Dustin Higgs and Corey Johnson will be unconscious. Dr. Antognini continually, through his reports, mixes up responsiveness with consciousness and unresponsiveness with unconsciousness, and these are critical differences.
But secondly, everything we know about pulmonary

physiology at the alveolar capillary membrane level says that if you already have a damaged alveolar capillary membrane and then you flood it with a toxic chemical, that you're at increased risk and increased heightened rapidity of getting pulmonary edema. So I disagree entirely with this entire sentence.

BY MR. KURSMAN:

Q. Now, I want to talk to you a bit about CT scans. Do you have an opinion on what a CT scan would show in either Mr. Higgs or Mr. Johnson based on their COVID-19 diagnosis?

A. Yes. A CT scan is extremely likely to show changes that are significant and severe of COVID infection, even in asymptomatic patients, which neither Mr. Higgs nor Mr. Johnson are. Neither one of them is. Both Mr. Higgs and Mr. Johnson are symptomatic patients, and the rate of significant CT findings in the lungs, which is the gold standard for looking at lung damage in COVID patients, that rate goes way up when you have symptomatic patients.

Studies have clearly demonstrated that somewhere between 60 and 100 percent of patients who are asymptomatic but have COVID infections will already have lung damage from that COVID infection. And then when a patient becomes symptomatic, the bottom number goes up to 80 percent. So, instead, you're looking at 80 to 95 percent.

Having a positive COVID study and symptoms means that they're virtually certain to show on a CT scan that they have

damage and that the nature of the CT scan will show damage called ground-glass opacification, which specifically looks at fluid in the alveolar spaces.

Q. And if you have what you've described as ground-glass opacification, does that put you at increased risk for flash pulmonary edema?

A. Yes, because it indicates there's already a certain amount of fluid that's leaking across that membrane. So it demonstrates that the membrane is already damaged significantly by the virus.

Q. Did you hear Dr. Locher's testimony today?

A. I did. Yes.

Q. Did you hear that he said Mr. Higgs' mitral valve regurgitation is a common diagnosis?

A. Yes, I did. I did.

Q. And can you tell the Court your opinion on that?

A. Moderate mitral --

MR. KOSSAK: Objection. Objection, Your Honor.

THE COURT: What's your basis?

MR. KOSSAK: Basis is Mr. Higgs has had mitral valve regurgitation prior to COVID, not COVID-related, and Dr. Van Norman has not issued an opinion in her declaration in support to provide her opinion on that issue.

MR. KURSMAN: Your Honor, Dr. Locher opined for the first time today that this mitral valve regurgitation is

a common diagnosis. So I'm just asking my expert to opine on that.

THE COURT: Overruled. I'll allow it.

BY MR. KURSMAN:

Q. Can you tell the Court your opinion on that?

A. Well, as a cardiac anesthesiologist, I can tell you that the presence of mitral regurgitation occurs in less than 2 percent of the population. I would not call it a common diagnosis at all. I would call it rare.

THE COURT: Wait a minute. Mr. Kursman, was Dr. Locher's testimony regarding the diagnosis of mitral valve prolapse or regurgitation?

MR. KURSMAN: It was mitral valve regurgitation, I believe.

MR. KOSSAK: Your Honor, I would object. This isn't in response to Dr. Locher's testimony. I mean, this was in the medical record.

THE COURT: But Dr. Locher did testify about it this morning.

MR. KOSSAK: But Dr. Van Norman had the opportunity to set out her opinion about this issue -- Dr. Zivot provided his opinion about this issue in his declaration.

THE COURT: But he didn't testify. Okay. I'm overruling the objection. Dr. Locher testified about it. She's a cardiac anesthesiologist. But, Mr. Kursman, keep

this --

(Overspeaking.)

MR. KURSMAN: --

THE COURT: Okay. All right.

Mr. Kossak? Cross-examination?

MR. KOSSAK: Yes, Your Honor. And thank you for bearing with my objections.

THE COURT: That's -- no, you're doing your job.

CROSS-EXAMINATION

BY MR. KOSSAK:

Q. Good morning, Dr. Van Norman. Thank you for being here today.

A. Thank you.

Q. My name is Jonathan Kossak. I'm counsel for the defendant. We've never spoken before. Correct?

A. That's correct. Yes.

Q. And you have never been deposed in this litigation. Correct?

A. That is correct. Yes. I had to stop and think. There's been so many declarations.

Q. You have previously testified under oath as an expert witness on behalf of a death row inmate in a method-of-execution case. Correct?

A. I testified as an expert witness regarding method of execution for a group of inmates in the state of Arkansas,

and that is the only other time I've testified on this topic.
Q. And excuse me. I apologize, but apparently my neighbors have decided to blow the leaves off their lawns. So I don't know how distracting that is, but I truly apologize.
THE COURT: I can't hear it.
MR. KOSSAK: Okay.
MR. KURSMAN: While we wait, I'm just going to object to this line of questioning related to her previous testimony. This hearing, as Your Honor --
THE COURT: I believe it's --
MR. KURSMAN: -- but we were cut off yesterday from doing that. But okay, Your Honor.
THE COURT: With Doctor...
MR. KURSMAN: With Dr. Crowns.
THE COURT: I believe Dr. Crowns had previously testified.
MR. KURSMAN: Yeah. That's right, Your Honor.
THE COURT: All right. So the objection's overruled. Dr. Van Norman has not previously testified.
BY MR. KOSSAK:
Q. Dr. Van Norman, that case that you just described, was that McGehee et al. v. Hutchison et al., Case No. 4:17-CV-179?
A. Well, I don't have the court identification in front of me, but that sounds correct.
Q. And do you recall the date of that testimony?

A. You know, I really don't. It was April, and I keep thinking 2019, but I think it was 2018. It's hard for me to recall -- I call it pandemic brain. You can't time it. It's a different meaning now.

Q. No, I appreciate that. And you were correct according to my records. It's April 26, 2019. So that appears accurate to me. So that was a lethal-injection case. Correct?

A. It was -- yes. It was not for one inmate. It had to do with the method rather than a single case.

Q. Right. But the drug in that case was midazolam. Correct?

A. Well, no. That's a drug in the case. This was a multiple-drug protocol.

MR. KURSMAN: Your Honor -- now I'm objecting. I'm objecting here. I'm going to object because now this is way out of the scope of what this hearing was held for. I mean now we're going into --

THE COURT: Wait, wait. No, no. I heard your objection. If I need a speaking objection, I'll get it. No speaking objections. If I ask for a basis, then you can tell me the basis for your objection. And I wasn't able to get off of mute in time; therefore, I couldn't hear you.

Mr. Kursman, what is the basis of your objection? It's beyond the scope?

MR. KURSMAN: As Your Honor has repeatedly noted, the hearing is limited really to COVID-19, and now we're talking

about Dr. Van Norman's testimony in a --

THE COURT: I believe Mr. Kossak is going to bias, which is always appropriate for cross-examination, but I don't know -- I'm not sure why we're going into the drugs that were at issue in that case. Mr. Kossak?

MR. KOSSAK: Your Honor, I didn't want to mislead the Court or anybody else that I was, you know, pretending that that prior case was about --

THE COURT: I'm aware. Mr. Kossak, if this is a bias cross, again, I'm not a jury. I kind of get it. So if you could move towards the substance of the declaration, rebutting the direct, cross-examining the direct.

MR. KOSSAK: I apologize. If you could give me just a little more time, I'll get off the subject --

THE COURT: We're running up against a deadline here. And you have one more witness.

MR. KOSSAK: That's right.

BY MR. KOSSAK:

Q. Dr. Van Norman, the Court wrote in its opinion: "By examining the Arkansas midazolam protocol, Dr. Van Norman" --

THE COURT: Wait, wait. Which court?

MR. KOSSAK: I'm sorry. The Eastern District of Arkansas court.

THE COURT: Okay.

MR. KOSSAK: It's an opinion published at 463

F.Supp.3d 870. The Court wrote in its opinion:

"By examining the Arkansas Midazolam Protocol, Dr. Van Norman is unable to say at what point any individual would experience extreme suffering and, instead, claims that that will vary from person to person."

Further, "Dr. Van Norman conceded that she has no direct scientific data to support the proposition that any inmate experienced severe pain and suffering during an execution."

Are you aware of that opinion?

THE WITNESS: I actually have not read nor heard that opinion, no.

BY MR. KOSSAK:

Q. Dr. Van Norman, you are personally opposed to the death penalty. Correct?

A. I am, yes.

Q. You would never agree to consult with the state on the method-of-execution procedure. Correct?

A. I'm not allowed to consult with the state or anyone about methods of execution in terms of advising them which are better or which are worse. That would be both unethical and would lead to my loss of credentialing by the American Board of Anesthesiology.

Q. Dr. Van Norman, you're not a board-certified cardiologist. Correct?

A. I am not. I am a board-certified anesthesiologist and

a fellowship-trained cardiac anesthesiologist, however.
Q. You are not a board-certified pulmonologist. Correct?
A. That is correct.
Q. And you're not a board-certified radiologist. Correct?
A. That is correct.
Q. And you're not a board-certified pathologist. Correct?
A. That is correct.
Q. But you do keep current on the latest medical research relevant to your field of anesthesia. Correct?
A. I do, but I guess -- yes. I do.
Q. So you're generally aware of studies, to the extent that any exist, regarding the use of barbiturates in anesthesia. Correct?
A. I am. Yes.
Q. And you would generally be aware of studies regarding the onset of flash pulmonary edema during anesthesia in human patients. Correct?
A. Yes.
Q. You have never written a published, peer-reviewed article about the effects of a massive intravenous dose of pentobarbital on humans. Correct?
A. There are no such studies.
Q. And you've never written a book chapter on that topic. Correct?
A. There are no such studies.

Q. And you've never lectured on that topic. Correct?
A. There are no such studies to lecture from.
Q. How many declarations have you submitted in this litigation, Dr. Van Norman?
A. I'm not entirely sure. I would leave that to you to tell me.
Q. Okay. It's nine. Do you --
A. It's been a long and complicated case. I'm sorry.
Q. I appreciate that very much.
A. Yes.
Q. Do you have all those declarations in front of you?
A. I have several of them. I don't have them all printed out in front of me, no.

MR. KURSMAN: Your Honor, I'm going to object.

THE COURT: Go ahead.

MR. KOSSAK: Mr. Kursman is not allowing me to ask questions about --

THE COURT: Mr. Kursman cannot allow you or not allow you. Mr. Kursman can object, and I rule on the objections. If you're saying Mr. Kursman is objecting to your line of bias cross-examination, I'd have to agree with you.

Mr. Kursman, why is bias cross-examination not allowable?

MR. KURSMAN: Right now that's not what I'm objecting to. It sounds to me that Mr. Kossak is going to go into all of Dr. Van Norman's prior declarations, and that's --

THE COURT: Well, hold on. If he does that, he will not be able to put on Dr. Antognini and it would be a very fruitless line, because we're trying to have a hearing on an as-applied challenge with regard to two specific inmates.

And I understand the bias cross-examination, but, again, I'm not a jury. I get it. And I really wish -- while bias is always appropriate for cross-examination, I think you're wasting time here, Mr. Kossak --

MR. KOSSAK: (Overspeaking.)

THE COURT: -- substance of your testimony.

MR. KOSSAK: Your Honor, excuse me. I apologize for speaking over you. But I am moving off of the bias.

THE COURT: Okay.

MR. KOSSAK: That was not the intention of my questioning. And I was going to say I'm not going to touch on every single topic in all of her declarations, but I am going to do a targeted response to her direct testimony that you just heard.

THE COURT: All right. Well, let's do it. And, again, I remind you I'm holding everybody to the time limits here.

MR. KOSSAK: I understand, Your Honor. Thank you.

BY MR. KOSSAK:

Q. Okay. I'd like to turn to your declaration supporting Plaintiff Higgs dated December 22, 2020. This is at ECF -- mine is 369-3.

A. I don't have it in that format, so I'm just looking through my format here. I believe I have the correct one in front of me.

Q. And I --

A. I apologize. I don't have one that's formatted in front of me with paragraphs. So you're going to have to, if you're going to refer to something, give me the first line of the paragraph.

Q. Sure.

A. In the meantime, I will look and see if I can locate a formatted one on my computer here. I apologize for that, but I wasn't expecting to do that. So I'll just go ahead and...

Q. Okay. So I'm looking at the bottom of page 4, the last paragraph. You state that "A COVID-positive prisoner, or a prisoner who has recently recovered from COVID-19, would experience a much more rapid and devastating onset of flash pulmonary edema at an earlier stage of the injection when brain levels of barbiturate are much lower." Correct?

A. Yes. I have that paragraph in front of me.

Q. You do not specify in seconds or minutes how much faster Mr. Higgs will experience the onset of flash pulmonary edema due to his COVID diagnosis. Correct?

A. I do not.

Q. You do not cite any published scientific papers to support your opinion in that paragraph. Correct?

A. I don't make any citations in that paragraph. That's

correct.
Q. Could you go back to page 2 of your declaration, at opinion No. 1.
A. Yes.
Q. In the middle of that paragraph, you state, "Flash pulmonary edema occurs very rapidly (i.e., within seconds or minutes.)" Correct?
A. Yes.
Q. And at the end of that sentence, you refer the reader to pages 33 to 34 of your expert declaration dated November 1, 2019. Correct?
A. Yes.
Q. Do you have your November 1 declaration in front of you?
A. I'm checking to make sure I have the correct one. Give me just a moment. Yes.
Q. And can you turn to page 31, or paragraph 65?
A. Yes.
Q. Toward the end of the paragraph you state:
"'Flash' pulmonary edema or 'acute' pulmonary edema refers to a phenomenon in which this entire process happens rapidly, e.g. over seconds to minutes, rather than over the course of hours or days." Correct?
A. That is correct.
Q. You don't have any citations or references to support that statement, do you?

A. That is common knowledge. It is the general terminology. But I do not cite anything in that paragraph. That's correct.
Q. Okay. And could you turn now to page 33, paragraph 67?
A. Okay.
Q. You state in the first sentence that the onset of pulmonary edema following IV barbiturate injection can be virtually instantaneous. Correct?
A. Correct.
Q. And your evidence for that is the Potts study cited in footnote 74. Correct?
A. That's what I've cited here, yes.
Q. And that's a single-patient study. Correct?
A. That is a case report of a single patient.
Q. And the date of that study is 1967. Correct?
A. That is correct.
Q. Do you have that report, that case study, in front of you?
A. I do not.
MR. KURSMAN: Your Honor, I'm going to object again.
THE COURT: Basis, Mr. Kursman?
MR. KURSMAN: This again now is so outside the scope of COVID-19. Now Mr. Kossak is questioning about just general opinions that they could have questioned about in earlier proceedings and they decided not to cross-examine Dr. Van Norman on. We've been cut off repeatedly.
THE COURT: Mr. Kossak, is this question on her most

recent declaration?

MR. KOSSAK: Your Honor, in her most recent declaration, in Opinion 1 on page 2, she says "Flash pulmonary edema occurs very rapidly, within seconds or minutes." And she just testified on direct.

THE COURT: Well, no. She's been saying that. That's not new. That's not new.

MR. KOSSAK: Your Honor, I'm just trying to probe the basis for her "seconds or minutes" because it goes to how much faster she believes --

THE COURT: No, Mr. Kossak.

MS. LIN: -- COVID-19 --

THE COURT: She has taken this position in numerous declarations. You have opted -- when she has been made available, you have opted not to cross-examine her on previous occasions when this particular subject was at issue. We're now in an as-applied challenge. You have been cross-examining her for some time, and we're not going to plow that ground.

You could have done it before. You chose not to. You're not going to do it here. Please get to the subject matter of her most current declaration for which Dr. Antognini provided a rebuttal declaration for which I've allowed her to testify here. You had opportunities to cross-examine Dr. Van Norman on this particular point before. So the objection is sustained.

MR. KOSSAK: Your Honor -- thank you, Your Honor.

BY MR. KOSSAK:

Q. Dr. Van Norman, you state in your December 22, 2020, declaration that flash pulmonary edema could occur within seconds or minutes. Correct?

A. It can occur within seconds or minutes. That's correct.

Q. You do not state anywhere in this declaration that either Plaintiff Higgs or Plaintiff Johnson will suffer pulmonary edema in seconds. Correct?

A. It is my expert opinion that they will.

Q. That is not the question I asked you. I'm asking you whether you stated in this declaration that Plaintiff Higgs or Plaintiff Johnson will suffer pulmonary edema in seconds.

A. I'm sorry. I'm going to take a moment and look through this declaration because, as I pointed out, I have several. So I want to make sure that I answer correctly here. (Pause.)

Okay. I've read the relevant portions. Can you please repeat the question so I make sure I understand what you're asking me?

Q. Question is, you don't state in this declaration that Plaintiff Higgs or Plaintiff Johnson will suffer pulmonary edema in seconds. Correct?

A. No. I state that I believe, it is my expert opinion, that they will experience pulmonary edema much earlier in the execution process.

Q. Dr. Van Norman, I'd like to now turn to your declaration

in support of Plaintiff Johnson.

A. Okay. Hang on.

THE COURT: Which one is that? What document number is that, Mr. Kossak?

MR. KOSSAK: This is ECF 374-3.

THE COURT: Okay. Thank you.

THE WITNESS: Yes. I have that in front of me.

BY MR. KOSSAK:

Q. Can you turn to page 5, please?

A. Yes. I'm there.

Q. In the middle of the paragraph you say, "COVID-mediated pulmonary damage occurs at the alveolar-capillary membrane, which will then be more sensitive to barbiturate damage, leading to flash pulmonary edema earlier in the injection process and before a peak brain level of barbiturate is achieved." Correct?

A. That's what this states. Yes.

Q. When you were referring to peak brain levels of the barbiturate, you were referring to the period of time after the injection is completed, where the concentration of the barbiturate in the brain reaches its highest level. Correct?

A. Yes.

Q. And that occurs minutes after the injection of the 5 grams of pentobarbital is complete. Correct?

A. Say that last one again? I apologize. It cut out a little bit.

Q. I said, and that occurs minutes after the injection of the 5 grams of pentobarbital is complete. Correct?
A. Correct.
Q. And the full injection takes at least four to five minutes. Correct?
A. I don't remember the calculations we did on an earlier report, but I think there have been a couple of experts, including myself, that indicated it takes about -- it will take several minutes to make this injection.
Q. Okay. Excuse me for a moment. I just want to find the report. Okay. So this is your report dated September 15, 2020, ECF No. 249-1.
A. Give me a few moments, because I wasn't expecting to testify on my past reports today, so I need to locate them.
MR. KURSMAN: Again, I'm going to object to the extent that Mr. Kossak continues to get into Dr. Van Norman's past reports when they had a previous opportunity to cross-examine her and declined to do so.
MR. KOSSAK: Your Honor, she couldn't remember the exact time total injection would take. She said it was in a prior report. I'm just going to --
THE COURT: Okay. Hold on. I was talking, but I was on mute.
MR. KOSSAK: Oh, I'm sorry.
THE COURT: I'm the person to whom this testimony

is being directed, and, again, this is an as-applied challenge. I'm allowing you to go into some of the things she said on her past declarations only to the extent they have a bearing on her testimony that she's giving here today.

I'm not going to let you have the free range to cross-examine her on material that you previously could have cross-examined her on and chose not to. You have a limited amount of time, and you're choosing to spend it on this subject; and I'm going to only assume that there's a reason you're not cross-examining her on the as-applied issues, because you don't have all afternoon.

MR. KOSSAK: I totally hear you, Your Honor. I'm just trying to identify the timing of the peak brain level which she says that the COVID-mediated pulmonary damage will occur prior --

THE COURT: Well, your questions are not -- the questions you're asking are -- those are very general questions. I want you to get to the point of this hearing. It's an as-applied challenge by these two individuals.

MR. KOSSAK: Your Honor --

MR. KURSMAN: And, Your Honor, if I may be heard --

THE COURT: No, let Mr. Kossak finish.

MR. KOSSAK: Your Honor, I'm almost there. In the same way that Mr. Kursman was referring to prior information and then was getting to the COVID thing, the COVID issue, that's

where I'm trying to go.

THE COURT: I know you have to make your record, Mr. Kossak, but you need to consider the audience to which you are directing this testimony, and the audience is telling you that this is not assisting her. So I suggest you tailor your questioning accordingly and not just stick to whatever script you have if I'm telling you that it's not helpful to me.

MR. KOSSAK: I appreciate that, Your Honor.

THE COURT: All right.

BY MR. KOSSAK:

Q. Dr. Van Norman, you can't say precisely in minutes or seconds how much before the peak brain level is achieved pulmonary edema will set in for inmates. Correct?

A. It is my opinion that COVID-mediated pulmonary edema in the presence of pentobarbital will occur instantaneously. And we know that peak levels of pentobarbital will occur several minutes after the injection and sometime after the injection's complete, and we already know that the injection itself will take several minutes. So I think that you can do the math.

Q. Okay. Going back to your December 22nd expert declaration in support of Mr. Higgs.

A. Yes. One second. I'm trying to sort through these.

I think I have the one you're referring to in front of me.

Q. Okay, great. Thank you. It's page 4, middle paragraph. You cite four studies. Correct?

A. Can you give me -- again, the copy I have is a nonformatted copy, so can you just give me the first line of the paragraph, and I'll be able to tell you if I'm in the right paragraph.
Q. Sure. The paragraph starts "Just recently it" --
A. Yes. I have it in front of me. Thank you very much.
Q. No problem. Okay. So in that paragraph you cite four studies: the Inui study, the Castelli study, the Varble study, and the Meng study. Correct?
A. Correct.
Q. In each of those studies, computerized tomography scans, or CT scans, were employed to detect the level of lung involvement in patients with COVID. Correct?
A. Yes.
Q. Would you characterize these studies as better tools of analysis of the actual state of Plaintiff Higgs' lungs or Plaintiff Johnson's lungs than objective measures of their cardiopulmonary health?
A. I'm not sure what you mean by the question. You'd have to tell me what you mean by objective measures of their cardiopulmonary health. Because the CT scan --
Q. For example --
(Overspeaking.)
A. I was going to say a CT scan is an objective test of cardiopulmonary health.
Q. What about a chest x-ray?

A. A chest x-ray is a non-sensitive test. It is actually known to be much less reliable in evaluating -- a negative chest x-ray is much less reliable in assessing true COVID status. The CT scan is gold-standard.
Q. Have you reviewed a CT scan of either of the inmates?
A. I don't know that a CT scan has even been done on either of these inmates.
Q. Are you aware that a chest x-ray has been done on Mr. Higgs?
A. I am aware.
Q. Have you -- you didn't cite in your declaration any published studies regarding how COVID patients' lung involvement shows up on chest x-rays. Correct?
A. Well, let me just look at something very quickly, because I think one of my studies actually does look at that, but I want to make sure. I've seen so many studies of this.
Can you give me just a moment? Before I say yes or no, I want to make sure I'm answering correctly.
Q. Let me withdraw that question. The four studies that we just discussed, and that you discuss on page 4, do any of those studies analyze how COVID patients' lung involvement show up on chest x-rays?
A. Some of them do indicate some of the patients' chest x-rays. At this moment I can't remember which ones. But in none of these studies was that the primary objective of the

study, to compare x-rays and CT scans, which is why I'm having trouble remembering which ones address it. I apologize. Did that answer your question?

Q. Yes, it did.

A. Yeah.

Q. You haven't reviewed Plaintiff Higgs' medical records since December 20, 2020. Correct?

A. I have seen them, but I did not review them for any of my declarations, because I hadn't received any extra records since that time.

Q. Okay. And let's turn to your --

A. I'm sorry. I'm sorry. Can I interrupt for a moment to go back to one of your previous questions? You asked me about CT scans versus chest x-rays and whether any of these studies that I cite deal with that, and in fact the Meng study did compare CT findings and chest x-rays in a number of asymptomatic patients.

And this is what I was trying to remember, because I was pretty sure I'd read about it; I just couldn't remember if I cited it. And I did cite the Meng study. Okay.

Q. Thank you.

A. In almost half of the patients who had CT findings -- had a positive COVID study and CT findings of significant ground-glass opacifications or consolidation, almost half of the chest x-rays were normal. So that's an example where a negative chest x-ray, in an asymptomatic patient, does not tell you accurately what's

happening in the lungs. You need a CT scan. And that's in the Meng study, which I know you're familiar with.

Q. Yes. Thank you, Dr. Van Norman. Can we go to your December 22nd declaration in support of Plaintiff Johnson?

A. Yes. Wait -- one second. Yes.

Q. You state that the signs of damage to his respiratory system are twofold: "he has shown decrease in blood oxygen saturation and cough." Correct?

A. Can you tell me what paragraph you're referring to just so I can turn to it?

Q. All right. Sure. Paragraph 8.

A. This one I actually have numbered paragraphs on. Okay. I've got it.

Q. You state in the third sentence, "What his clinical course will be has yet to be determined." Is that correct?

A. Yes.

Q. And then in the next sentence you say, "During very early stages of his illness (in the first four days), he has shown decrease in blood oxygen saturation and cough - both of which are signs of damage to his respiratory system." Correct?

A. Correct.

Q. And then in the next paragraph, paragraph 9, you note that his blood oxygen saturation dropped from 99 to 97 percent. Correct?

A. Correct.

Q. Then on the next page, paragraph 11, you state that "A clear change from 99% to 97%, as Mr. Johnson's pulse oximetry results show is clinically significant and indicates significant changes have occurred in gas exchange in the lungs." Correct?
A. That's correct.
Q. Are you aware, Dr. Van Norman, that Plaintiff Johnson's oxygen saturation was tested on December 26th and was recorded as 99 percent?
A. I don't remember if I was given those records subsequent to this declaration. So I -- it doesn't necessarily surprise me. I don't know that I have ever seen those records.

MR. KOSSAK: Thank you, Your Honor. That's all I have.

THE COURT: Any redirect?

MR. KURSMAN: Just a few questions, Your Honor.

REDIRECT EXAMINATION

BY MR. KURSMAN:
Q. Mr. Kossak was talking with you about chest x-rays. Can you tell the Court what the significance of a chest x-ray that shows lung damage means?
A. Certainly. A test x-ray that shows lung damage from COVID is part of -- it helps to make the diagnosis. If the test x-ray is positive, it means that changes in the lungs have definitely occurred.

However, a negative chest x-ray is so insensitive that

it cannot tell you whether changes have occurred that are significant, and a CT scan will pick up significant changes of alveolar damage much earlier than a chest x-ray will. But a positive chest x-ray is very helpful.

Q. And when you say positive, do you mean it's an x-ray that shows damage?

A. An x-ray that shows findings consistent with COVID-19 damage is very helpful in seeing that damage has occurred, particularly if it's compared with previous chest x-rays that show differences.

Q. And just so the Court is clear, what does it mean for an x-ray that doesn't show damage?

A. An x-ray that does not show damage, a negative chest x-ray, is very nonspecific. Only about 50 percent of the time does that indicate that there isn't damage. That's a level of certainty that is equivalent to tossing a coin from your pocket. So you cannot rely on a negative chest x-ray.

That doesn't mean anything in this new COVID environment. If the patient has symptoms, if the patient is COVID-positive and you want to know if they have lung damage, you cannot do a chest x-ray and be certain about it unless the chest x-ray is positive.

Q. Now, based on Mr. Higgs' and Mr. Johnson's COVID-19 diagnosis, in your opinion, how quickly will they experience flash pulmonary edema after the injection of 5 grams of

pentobarbital?
A. Well, in my opinion, they will experience flash pulmonary edema as soon as the chemical burns their pulmonary capillaries, which will be within a second or two of the start of the injection. It's a caustic chemical, and it's going to attack an already leaky membrane.
Q. Will they be sensate at that time, in your opinion?
A. Yes. They'll definitely be sensate, because there's nothing to prevent them in any way from feeling that. The drug has not even reached the brain at that point.
Q. And can you describe for a layperson like me what it means to suffer from flash pulmonary edema?
A. Flash pulmonary edema is a form of drowning. What happens is that the spaces in the lungs that normally contain air will rapidly fill with what's called a proteinaceous fluid, a very thick fluid. This is not even like water. It's the plasma of the blood. And it will prevent air exchange from happening. It also stretches the alveoli, so there's a sensation of suffocation and drowning and air hunger that occurs almost immediately.
Q. Thank you, Dr. Van Norman.
MR. KURSMAN: I have no further questions.
THE COURT: Dr. Van Norman, thank you very much for taking time out of your very busy schedule. I appreciate it, and the parties appreciate it. You are free to get off the call.

THE WITNESS: Thank you, Your Honor, for allowing me the opportunity.

THE COURT: Oh, you're very welcome. And I hope your allergies clear up, and have a good day.

THE WITNESS: Thank you. And you guys all stay safe, okay?

THE COURT: Thank you. All right.

THE WITNESS: Thank you, Your Honor.

(Witness exits.)

THE COURT: All right. Last witness?

MR. KURSMAN: Your Honor, this is Alex Kursman. I believe the last witness is Dr. Antognini. I believe we will just be cross-examining him, and we will limit our cross-examination.

THE COURT: Good. Let's take a break.

(Recess from 2:07 p.m. to 2:24 p.m.)

THE COURT: Good afternoon, everyone.

MR. KURSMAN: Your Honor, we had decided that we will not cross-examine Dr. Antognini. So our presentation is done.

THE COURT: Okay. Government?

MR. KOSSAK: Your Honor, this is Jonathan Kossak on behalf of the defendant. Can we have a moment?

THE COURT: Sure.

(Counsel conferring.)

MS. LIN: Your Honor, this is Jean Lin on behalf of

the government. We don't have any direct testimony, as we had previously indicated.

THE COURT: Okay. So you rest on your declaration?

MS. LIN: That's correct, Your Honor.

THE COURT: And the counsel for plaintiffs will rest on whatever remaining declarations haven't been testified to. Is that correct?

MR. KURSMAN: Yes, Your Honor.

THE COURT: Okay. And all the declarations are admitted into evidence. Do you all -- do you want to take a few minutes and sum up?

MR. KURSMAN: Yes, Your Honor.

THE COURT: All right.

MS. LIN: Yes, Your Honor.

MR. KURSMAN: Would you like plaintiffs' counsel?

THE COURT: Well, technically, the government has moved, so they probably should go first since they're the proponent of the motion. But I don't think it much matters.

MS. LIN: Your Honor, the government is not the one moving for preliminary injunction.

THE COURT: That's right. That's right. It's a motion to dismiss. All right. Go ahead.

MR. KURSMAN: Okay. Could I just take one second, Your Honor?

THE COURT: Yes, certainly.

MR. KURSMAN: Your Honor, according to Bureau of Prisons' medical records, Mr. Higgs and Mr. Johnson are both symptomatic with COVID-19 infection, and you heard from Dr. Van Norman as to why that matters.

Pentobarbital has a high pH, making it caustic. That means it will corrode organic tissue. The injection of 5 grams of pentobarbital into veins travels straight to the heart where it is pumped into the lungs. At that point, it goes into the alveolar capillaries, which are in the lungs.

Because Mr. Higgs and Mr. Johnson have COVID and are symptomatic, it is very highly likely that their alveolar capillaries are already damaged, and we know in Mr. Higgs' case his alveolar capillaries are damaged because his chest x-ray shows it.

Your Honor saw the chest x-rays showing interstitial markings consistent with COVID pneumonia. The caustic blood that is filled with pentobarbital will corrode the capillaries instantaneously because those capillaries are already damaged. Once this happens, the capillaries leak fluid in the lungs, and the lungs begin to fill up with water. This will feel like drowning or waterboarding. And this all happens before the pentobarbital even gets to the brain.

As you know, it takes one to two and a half minutes for onset in the brain, but onset doesn't mean reaching its maximum effect. It just means it's starting to work. All this time,

Mr. Higgs and Mr. Johnson will be drowning in their own fluid.

So even if at some point before death the pentobarbital renders Mr. Higgs or Mr. Johnson insensate, which we dispute, they will still suffer the horrifying and terrorizing sensation of drowning for minutes before their deaths. This isn't speculation, Your Honor. It's sure or very likely to occur, and it's backed by science. The alternatives we have offered are feasible and readily implemented.

First, all we ask, at minimum, is that the government wait until our clients who are infected with COVID's lungs heal. This will reduce the risk of instantaneous flash pulmonary edema.

The second alternative we've proffered is simply the addition of an analgesic.

Third, we have even proffered that a firing squad would substantially reduce the risk of suffering because of the extreme suffering that's at issue here.

We have established that the government's lethal injection protocol will cause significant and extreme suffering.

Now I want to talk a bit about the government's witnesses. First there is Dr. Antognini, who we did not --

THE COURT: Mr. Kursman, I hate to interrupt your presentation, but you've referred to Mr. Higgs and Mr. Johnson together. But do you agree that I need to weigh the evidence with regard to each of those inmates separately?

I mean, for example, I was shown evidence regarding a chest

x-ray of Mr. Higgs but not of Mr. Johnson. Correct? I mean you agree that the evidence must be considered separately?

MR. KURSMAN: Of course, Your Honor. These are both as-applied challenges, as applied to both inmates individually.

THE COURT: And so what is the evidence with regard to lung damage in Mr. Johnson?

MR. KURSMAN: Sure. So Mr. Johnson had a COVID-19 diagnosis, and from what we've heard from the experts is that most COVID-19 patients, even asymptomatic patients in studies, 95 percent of asymptomatic patients show abnormal damage on CT scans. And we know that Mr. Johnson isn't asymptomatic.

THE COURT: But we don't have a CT scan or a lung x-ray.

MR. KURSMAN: Yeah. No, that's right, Your Honor. But what we do know is, because he's symptomatic with COVID-19, it's very likely that he does have that lung damage. It's very likely, if you extrapolate from the studies, that anywhere from 50 to 95 percent of asymptomatic patients have lung damage. Mr. Johnson, who is COVID-19 positive, very likely also has that damage.

THE COURT: Well, you're talking about asymptomatic COVID patients who are examined in a hospital. You're not -- I mean, would you agree that's a smaller sample than all the asymptomatic COVID patients -- you know, people who got positive COVID tests who never went to the hospital. Right?

MR. KURSMAN: Oh, I think so, Your Honor. It's people who tested positive for COVID-19. But I assume that both Mr. Higgs and Mr. Johnson not even in a prison setting would have tested for COVID-19 because both of them are exhibiting symptoms. They're not the --

THE COURT: Right. But when you talk about 50 to 95 percent of asymptomatic -- when you say 50 to 95 percent of asymptomatic positive COVID diagnoses would be expected to show lung damage, that is based on a study of people who came into the hospital. Right? So that study does not include people who tested positive for COVID who are asymptomatic and never came to the hospital.

MR. KURSMAN: Well, I think that study was -- and Your Honor could look at the studies; they're cited in our report. But I think the studies are that the people who received COVID-19 diagnoses, as in they were tested and they had COVID-19 and they didn't need hospitalization, they were asymptomatic.

THE COURT: Right. But they were enrolled in the study.

MR. KURSMAN: Right. It was for study purposes, not that they were going into the hospital for treatment purposes.

THE COURT: Okay. All right.

I'm sorry. Please continue.

MR. KURSMAN: So I want to talk a bit about the

government's witnesses. First there's Dr. Antognini, and we decided not to cross-examine Dr. Antognini. But as this court knows, it already found Dr. Antognini's opinions carry little weight. Not only do his references not say what he says they said, but many references that he cites in his report actually say the opposite.

Then the next witness that the government called is Dr. Locher. As you heard, he left out of his declaration relevant medical records of both Mr. Higgs and Mr. Johnson. He left out that Mr. Higgs had a cough, which is a telltale symptom of COVID. He said about Mr. Johnson something called "cough minor," even though the report said a "cough," and in parentheses, something like "heavy." So that is where we are with those two experts.

Now, he also said that although a CT scan wasn't done, it would likely show minimal abnormalities. But he admitted that the studies that he cited in his declaration state, I would say, 45 to 97 percent of asymptomatic patients who enrolled in studies show abnormalities in CT scans.

And like we just talked about, Mr. Higgs and Mr. Johnson are symptomatic. And you'll see in his declaration, in Dr. Locher's declaration, he said his opinions are subject to change if medical conditions of either Mr. Higgs or Mr. Johnson change. Well, for Mr. Higgs, Dr. Locher didn't realize he had a cough, and that's certainly a change in condition.

Now let's talk about Dr. Crowns. He doesn't practice on living patients. He has no specialized training in anesthesia or pharmacology. He doesn't even know the level of anesthetic depth. That means he doesn't know the difference between general anesthesia and sedation. So for him to opine on how quickly pentobarbital causes pulmonary edema for the level of Mr. Higgs' or Mr. Johnson's anesthetic depth, quite frankly, makes no sense. He has no idea how to assess such depth.

Your Honor, because of Mr. Johnson's and Mr. Higgs' COVID diagnosis, the lethal injection protocol is essentially going to waterboard them to death. Being waterboarded to death violates the Eighth Amendment. Thank you.

THE COURT: Okay. For the government?

MS. LIN: Yes. Thank you, Your Honor.

Your Honor, the Court's very familiar with the high bar that the plaintiffs have to meet in order to show a potential likelihood for the success on an Eighth Amendment claim, which, as the Supreme Court said in *Lee v. Barr*, that the standard is very high, that the plaintiffs have to show that the protocol is sure or very likely to cause serious injury and needless suffering for these two plaintiffs.

And what is before the Court now is a variation of the --

THE COURT: Ms. Lin, I'm sorry.

With regard to the counsel for the plaintiffs' proposal that the executions be stayed until the inmates are no longer

suffering from COVID, or the request that an analgesic be administered prior to the injection of pentobarbital, what is the government's position with regard to those two requests?

MS. LIN: Your Honor, for those two questions, we rest on our briefing on the point, but in summary we oppose -- we submit that those are not the kind of alternative methods that are going to likely -- to significantly reduce the risk of severe pain.

THE COURT: Well, hold on a second. Are you saying that you think it doesn't matter whether you execute these individuals when they're still suffering from COVID or when they're recovered? I mean, doesn't that seem logical that there would be less suffering when they were no longer suffering from COVID symptoms?

MS. LIN: Your Honor, our position is that the kind of --

THE COURT: And -- and I'm sorry. Let me interrupt you one more time. Today is the 5th of January. Mr. Higgs' execution, I believe, is scheduled for the 14th, and Mr. Johnson's for the 15th. Am I right?

MS. LIN: Yes.

THE COURT: Okay. So we're talking nine days from today. I'm not understanding your position that it makes no difference whether you execute a man who is suffering from COVID or isn't suffering from COVID as far as pain and suffering goes.

I mean they're not asymptomatic.

MS. LIN: Your Honor, if I may respond?

THE COURT: Yes. Yes.

MS. LIN: To discuss the distinction, even though Mr. Higgs and Mr. Johnson have been diagnosed with COVID-19, as we admitted, we also understand that they have some symptoms. But the important point is whether they're clinically significant. And our experts agree and have shown that they're not clinically significant.

The bottom-line issue before the Court is whether these inmates are going to suffer pulmonary edema while sensate, and we still don't think that has been established just because someone has been diagnosed with COVID and has mild symptoms.

And as our Dr. Locher has indicated both in his declaration and part of testimony today, that these are not the kind of inmates presenting this type of lung damage that would create any kind of clinical difference for purposes of the issue before this court.

So there are objective factors. They've had no fevers. Their respiratory rates are fine, are normal. They have normal peak flows. These are also not the type of patients who even require CT scans under the current medical standard. There were a lot of studies that were cited early on based on groups, on people who were -- some are viewed at the time because COVID was so new that these studies were therefore all retrospective

studies based on people even if they are asymptomatic they developed it because they were exposed to COVID.

So those kind of studies, while helpful for the people in academia to learn and study about COVID, what we do have are two inmates whose medical records are before this court, and the question's just about these two inmates and what their medical conditions show today.

So the x-ray image, for example, of Mr. Higgs based on the radiologist's report -- and there's no reason to question the radiologist's bias here -- is that the lungs are clear, and that testimony was corroborated by Dr. Locher.

So I guess to answer Your Honor's question about why don't we just wait, if there are in fact lung damage, then that's a wholly separate question. But our position remains that it's simple and pure speculation on plaintiffs' part that there's in fact lung damage. And, again, there's a wide range, you know, if there are any kind of showing on the CT scan; whether they're clinically significant is the crucial point here.

Our bottom-line submission, though, is consistent with what we've been saying before, is the pentobarbital is going to render them insensate so fast that the differences that we're talking about do not matter. And we say that because, obviously, we do not want to execute people if it's going to cause them severe suffering.

But, again, what is before the Court now is just a

variation of that prior expert. Now we have information about these two inmates, and we have contested information again; but we submit that our information is based on objective medical records, and we are focusing on the standard, and it's pure speculation in our view that the plaintiffs suffer COVID-related lung damage.

So, to answer Your Honor's question, the government does not believe that postponement of the executions is called for. Sorry for the long answer to your question.

THE COURT: Thank you. You can continue.

MS. LIN: I don't have too much to say, Your Honor, other than just to emphasize the fact that this is the plaintiffs' burden, to establish that they're likely going to suffer pain and -- significant pain and severe pain due to the fact that they have been diagnosed with COVID-19, and we dispute that based on the medical records and based on the objective evidence.

To the extent that there was speculation which we submit from Dr. Van Norman about when the pulmonary edema would set in, she has said that it would set in far before the peak brain level, but our Dr. Antognini declaration, which had been credited by the Supreme Court, says that the unconsciousness would occur long before the peak brain level and he had estimated the time to be between 15 and 30 seconds. So that is the crucial time frame.

And so just a quick point about suggesting that Dr. Locher somehow failed to account for Mr. Johnson's medical records, he did, in fact, note that Mr. Johnson had a cough and that the confusion -- just to clear this up, the confusion about whether he had a cough was a slightly different date.

So the cough that he was describing was from a different date, but he simply reiterated exactly what the medical record says. And that was on Johnson 0004, and it's reported as having "little cough as far as nonproductive." And Dr. Locher simply had a typo as to the date.

But his bottom-line conclusion has not -- did not change because he did mention that Johnson had a cough, and he listed all the symptoms that he saw, and there was no exclusion of any particular symptom. But, again, his opinion is based on the overall assessment of the inmate's medical records and is not just on these types of symptoms that are more, if you will, objective symptoms, that there are other objective factors.

And so that based on his experience in treating COVID patients, his opinion we believe is entitled to strong deference. And again, as I already mentioned before, his opinion about a chest x-ray -- and granted, he's not a radiologist, nor is Dr. Stephen -- is consistent with Dr. Yoon, the radiologist who actually performed the -- who prepared the final report showing that the lungs were clear for Mr. Higgs.

So just one quick point about the statistics in the

studies, and I know the numbers are quoted very freely. Again, as noted before, we're looking at studies that were compiled fairly early on when COVID was very new and lots of CT scans were done, and most importantly, those were retrospective studies. That means that people -- there was no control group, there was no comparing people walking off the streets, you know, in the sample group and then there is a group that is then tested. But these are just people that already, more likely than not, have already had some kind of exposure or were hospitalized.

So, again, we don't believe those studies indicate any likelihood as to these two plaintiffs, and particularly those are again just speculation, which is not sufficient to award preliminary injunctive relief. That's all I have, Your Honor.

THE COURT: All right. Thank you, Ms. Lin.

Mr. Kursman, did you want any time for rebuttal?

MR. KURSMAN: I think it could be very quick, Your Honor. Ms. Lin keeps repeating that it's speculation. It's not. Both of these clients are diagnosed with COVID-19. That is undisputed. Both are symptomatic. That's undisputed.

The studies that we presented to the Court show anywhere from 50 to 97 percent of asymptomatic patients have lung damage. That is undisputed. The government has provided no counterevidence to dispute that.

And you saw Mr. Higgs' x-ray. It's clear as day that there

is damage on that x-ray. This is not speculation at all. It's supported by science. Both of their lungs are damaged, and they are both going to suffer flash pulmonary edema if they're subjected to the lethal-injection protocol.

Thank you, Your Honor.

THE COURT: Thank you all.

Okay. Thank you all for getting your witnesses on and your presentations, and I will try and get a ruling out as soon as I can. Thank you all.

MR. KURSMAN: Thank you.

MS. LIN: Thank you, Your Honor.

THE COURT: All right. Have a good afternoon.

(Proceedings adjourned at 2:48 p.m.)

CERTIFICATE *

I, BRYAN A. WAYNE, Official Court Reporter, certify that the foregoing pages are a correct transcript from the record of proceedings in the above-entitled matter.

/s/ Bryan A. Wayne
Bryan A. Wayne

* PLEASE NOTE:

This hearing was taken via telephone conference in compliance with U.S. District Court Standing Order 20-19 during the COVID-19 pandemic. Transcript accuracy may be affected by limitations associated with use of electronic technology, including but not limited to any sound distortions and/or audio interferences.

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 21-5004 **September Term, 2020**

1:19-mc-00145-TSC

Filed On: January 14, 2021

In re: In the Matter of the Federal Bureau of Prisons' Execution Protocol Cases,

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James H. Roane, Jr., et al.,

Appellees

v.

Jeffrey Rosen, Acting Attorney General, et al.,

Appellants

BEFORE: Srinivasan*, Chief Judge, and Henderson, Rogers, Tatel, Garland*, Millett, Pillard, Wilkins, Katsas, Rao, and Walker, Circuit Judges

O R D E R

Appellees' emergency petition for rehearing en banc and, if necessary, an administrative stay, and the opposition thereto were circulated to the full court, and a vote was requested. Thereafter, a majority of the judges eligible to vote did not vote in favor of the petition. Upon consideration of the foregoing, it is

ORDERED that the petition be denied. It is

FURTHER ORDERED that the request for administrative stay be dismissed as moot.

The Clerk is directed to issue the mandate forthwith to the district court.

Per Curiam

FOR THE COURT:
Mark J. Langer, Clerk

BY: /s/
Daniel J. Reidy
Deputy Clerk

* Chief Judge Srinivasan and Circuit Judge Garland did not participate in this matter.