

[PUBLISH]

IN THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

No. 16-15549
Non-Argument Calendar

D.C. Docket No. 2:11-cv-00438-WKW-TFM

THOMAS D. ARTHUR,

Plaintiff-Appellant,

versus

COMMISSIONER, ALABAMA DEPARTMENT OF CORRECTIONS,
WARDEN,

Defendants-Appellees.

Appeal from the United States District Court
for the Middle District of Alabama

(November 2, 2016)

Before HULL, MARCUS and WILSON, Circuit Judges.

HULL, Circuit Judge:

It has been 34 years since Thomas Arthur brutally murdered Troy Wicker. During 1982 to 1992, Thomas Arthur was thrice tried, convicted, and sentenced to death for Wicker's murder. After his third death sentence in 1992, Arthur for the next 24 years has pursued, unsuccessfully, dozens of direct and post-conviction appeals in both state and federal courts.

In addition, starting nine years ago in 2007 and on three separate occasions, Arthur has filed civil lawsuits under 42 U.S.C. § 1983 challenging the drug protocol to be used in his execution. This is Arthur's third such § 1983 case, and this current § 1983 case was filed in 2011. For the last five years Arthur has pursued this § 1983 case with the benefit of lengthy discovery. The district court held a two-day trial and entered two comprehensive orders denying Arthur § 1983 relief. Those orders are the focus of the instant appeal.

After thorough review, we conclude substantial evidence supported the district court's fact findings and, thus, Arthur has shown no clear error in them. Further, Arthur has shown no error in the district court's conclusions of law, inter alia, that: (1) Arthur failed to carry his burden to show compounded pentobarbital is a feasible, readily implemented, and available drug to the Alabama Department of Corrections ("ADOC") for use in executions; (2) Alabama's consciousness assessment protocol does not violate the Eighth Amendment or the Equal Protection Clause; and (3) Arthur's belated firing-squad claim lacks merit.

I. CONVICTION AND APPEALS

The Alabama Supreme Court summarized the facts underlying Arthur's criminal conviction as follows:

More than 20 years ago, Arthur's relationship with his common-law wife ultimately led to his brutally murdering a relative of the woman. Arthur shot the victim in the right eye with a pistol, causing nearly instant death. He was convicted in a 1977 trial and was sentenced to life imprisonment.

While on work release during the life sentence, Arthur had an affair with a woman that ultimately led to his brutally murdering that woman's husband, Troy Wicker, in 1982. Arthur shot Wicker in the right eye with a pistol, causing nearly instant death.

Ex parte Arthur, 711 So. 2d 1097, 1098 (Ala. 1997).

In 1982, Arthur was convicted and sentenced to death for Wicker's murder, but the Alabama Supreme Court reversed that conviction in 1985. Arthur v. King, 500 F.3d 1335, 1337 (11th Cir. 2007). In 1987, Arthur was again convicted and sentenced to death, but that conviction was overturned by Alabama's Court of Criminal Appeals in 1990. Id. After his third trial in 1991, Arthur was again convicted of Wicker's murder and sentenced to death in 1992. Id. This time, his conviction and sentence were affirmed. Id. He did not file a petition for writ of certiorari with the United States Supreme Court. Id. at 1337-38.

At his third sentencing proceeding, Arthur asked for a death sentence, stating that a capital sentence would provide him better prison accommodations, more access to the law library, more time to devote to his appeal, and a more extensive appeals process. Arthur v. Thomas, 739 F.3d 611, 614 (11th Cir. 2014). Arthur told the jury that he did not believe he would be executed. Id. Arthur's murder of Wicker was a capital offense under Alabama law because Arthur had been convicted of another murder in the 20 years preceding his second murder. See Ala. Code § 13A-5-40(a)(13) (1975); Arthur v. State, 71 So. 3d 733, 735 (Ala. Crim. App. 2010).

In 2001, after exhausting his state court remedies, Arthur filed a federal habeas corpus petition pursuant to 28 U.S.C. § 2254. Arthur v. Allen, 452 F.3d 1234, 1238, 1240-43 (11th Cir.), modified on reh'g, 459 F.3d 1310 (11th Cir. 2006). The district court dismissed the § 2254 petition as untimely, but granted a certificate of appealability as to Arthur's claims of actual innocence, statutory tolling, and equitable tolling. Id. at 1243. In 2006, this Court affirmed the dismissal of Arthur's § 2254 petition, concluding that Arthur had not shown actual innocence or entitlement to statutory or equitable tolling. Id. at 1253-54.¹ The

¹ In May 2012, Arthur filed a motion pursuant to Rule 60(b)(6) of the Federal Rules of Civil Procedure, seeking relief from the district court's order dismissing his § 2254 petition as untimely. Arthur, 739 F.3d at 626-27. The district court denied Arthur's motion, and this Court affirmed. Id. at 627, 633.

Supreme Court denied Arthur's petition for writ of certiorari. Arthur v. Allen, 549 U.S. 1338, 127 S. Ct. 2033 (Mem.) (2007).

With this background, we turn to Arthur's current § 1983 case, challenging Alabama's use of midazolam in its lethal injection protocol. To place Arthur's current § 1983 claim in context, we review the history of lethal injection in Alabama and how Alabama has had to change the drugs used due to unavailability. For years, Arthur challenged the use of sodium thiopental and then pentobarbital. But now that the ADOC has not been able to procure sodium thiopental or pentobarbital and has had to switch to midazolam, Arthur is currently challenging midazolam and now asks to go back to sodium thiopental or pentobarbital as his preferred alternatives. We thus review in great detail how this case got here today.

II. HISTORY OF LETHAL INJECTION IN ALABAMA

When Arthur was sentenced to death, Alabama executed inmates by electrocution. See McNair v. Allen, 515 F.3d 1168, 1171 (11th Cir. 2008). On July 1, 2002, the Alabama legislature adopted lethal injection as the state's preferred form of execution. Id. The legislature allowed inmates already under a sentence of death a 30-day window to choose electrocution as their method of execution, after which time they would be deemed to have waived the right to request a method other than lethal injection. Ala. Code § 15-18-82.1(b).

Alabama's method-of-execution statute further provides that:

If electrocution or lethal injection is held to be unconstitutional by the Alabama Supreme Court under the Constitution of Alabama of 1901, or held to be unconstitutional by the United States Supreme Court under the United States Constitution, or if the United States Supreme Court declines to review any judgment holding a method of execution to be unconstitutional under the United States Constitution made by the Alabama Supreme Court or the United States Court of Appeals that has jurisdiction over Alabama, all persons sentenced to death for a capital crime shall be executed by any constitutional method of execution.

Id. § 15-18-82.1(c). The Alabama statute does not prescribe any particular method of lethal injection; the legislature left it to the ADOC to devise the policies and procedures governing lethal injection executions, and exempted the ADOC from the Alabama Administrative Procedure Act in exercising that authority. Id. § 15-18-82.1(g).

The ADOC has used a three-drug lethal injection protocol since it began performing executions by lethal injection in 2002. See Brooks v. Warden, 810 F.3d 812, 823 (11th Cir.), cert. denied sub nom. Brooks v. Dunn, 136 S. Ct. 979 (2016). Each drug in a three-drug protocol is intended to serve a specific purpose. The first drug should render the inmate unconscious to “ensure[] that the prisoner does not experience any pain associated with the paralysis and cardiac arrest caused by the second and third drugs”; the second drug is a paralytic agent that “inhibits all muscular-skeletal movements and, by paralyzing the diaphragm, stops respiration”; and the third drug “interferes with the electrical signals that stimulate

the contractions of the heart, inducing cardiac arrest.” Baze v. Rees, 553 U.S. 35, 44, 128 S. Ct. 1520, 1527 (2008) (plurality opinion).

The third drug in the ADOC protocol has always been potassium chloride, and the second drug has always been a paralytic agent—either pancuronium bromide or rocuronium bromide. Brooks, 810 F.3d at 823. However, the ADOC has changed the first drug in its protocol twice. Id. From 2002 until April 2011, it used sodium thiopental as the first drug in the three-drug sequence. Id. But a national shortage of sodium thiopental forced states, including Alabama, to seek a replacement for sodium thiopental as the first drug in the series. See Glossip v. Gross, 576 U.S. ___, ___, 135 S. Ct. 2726, 2733 (2015) (explaining that the sole domestic manufacturer of sodium thiopental ceased production of the drug in 2009 and exited the market entirely in 2011).

From April 2011 until September 10, 2014, Alabama used pentobarbital as the first drug. Brooks, 810 F.3d at 823. As the Supreme Court has noted, “[b]efore long, however, pentobarbital also became unavailable.” Glossip, 135 S. Ct. at 2733. Arthur has acknowledged that Alabama’s supply of commercially manufactured pentobarbital expired on or around November 2013. From September 11, 2014, until the present, Alabama has used midazolam as the first drug in the series. Brooks, 810 F.3d at 823.

Currently, Alabama's lethal injection protocol calls for the administration of: (1) a 500-mg dose of midazolam, (2) followed by a 600-mg dose of rocuronium bromide, and (3) finally, 240 milliequivalents of potassium chloride. This lethal injection protocol involves the same drugs, administered in the same sequence, as the protocol at issue in Glossip. 135 S. Ct. at 2734-35.

III. 2011: COMPLAINT ABOUT PENTOBARBITAL

Arthur's execution date is currently set for November 3, 2016. This is the sixth time that Alabama has scheduled his execution,² and this case is Arthur's third § 1983 challenge to lethal injection as the method of his execution.³

In May 2007, shortly after the State filed a motion to set an execution date, Arthur filed a § 1983 action challenging Alabama's lethal injection protocol which in 2007 included sodium thiopental as the first drug. (CM/ECF for the U.S. Dist. Ct. for the S.D. Ala., case no. 1:07-cv-342, doc. 1 at 1-2, 6; doc. 15 at 11). The district court dismissed that complaint based on laches, and this Court affirmed. (Id., docs. 19, 20, 27, 28). In October 2007, Arthur filed a second challenge to

² Alabama previously scheduled Arthur's execution for (1) April 27, 2001; (2) September 27, 2007, which was reprieved by the governor until December 6, 2007; (3) July 31, 2008; (4) March 29, 2012; and (5) February 19, 2015.

³ Arthur has, in fact, filed five § 1983 cases in total. In addition to his three method-of-execution challenges, he has also brought claims under § 1983 seeking (1) access to physical evidence for DNA testing in a bid to uncover exonerating evidence; and (2) an injunction barring a post-mortem autopsy of his body. (CM/ECF for the U.S. Dist. Ct. for the S.D. Ala., case no. 1:08-cv-441, docs. 1, 11, 12); (CM/ECF for the U.S. Dist. Ct. for the M.D. Ala., case no. 2:07-cv-319, docs. 1, 14,15).

Alabama's lethal injection protocol, which the district court again dismissed for unreasonable delay, and this Court affirmed. (CM/ECF for the S.D. Ala., case no. 1:07-cv-722, docs. 1, 22, 23, 28, 29).

In April 2011, Alabama switched from using sodium thiopental to pentobarbital as the first drug in its lethal injection protocol. Brooks, 810 F.3d at 823. On June 8, 2011, Arthur filed another § 1983 complaint in federal district court, challenging Alabama's new lethal injection protocol, especially its use of pentobarbital as the first drug.

As amended, Arthur's complaint raised three § 1983 claims: (1) the ADOC's use of pentobarbital as the first drug in its three-drug lethal injection protocol violated the Eighth Amendment's prohibition on cruel and unusual punishment; (2) the ADOC's secrecy in adopting and revising its lethal injection protocol violated the Fourteenth Amendment's Due Process Clause; and (3) the ADOC had materially deviated from its lethal injection protocol by failing to conduct a "consciousness assessment" during an earlier execution, thereby violating the Fourteenth Amendment's Equal Protection Clause. Arthur also alleged that Alabama's lethal injection statute violated the state constitution.

The district court dismissed Arthur's Eighth Amendment and Due Process claims on statute-of-limitations grounds and his Equal Protection claim for failing to state a claim upon which relief could be granted. Arthur v. Thomas, 674 F.3d

1257, 1259 (11th Cir. 2012). Because Alabama began its lethal injection protocol in 2002, the district court determined that Arthur's 2011 complaint challenging it was barred by the two-year statute of limitations applicable to § 1983 claims. Id. Arthur appealed. Id.

This Court reversed the district court's dismissal as to only Arthur's Eighth Amendment and Equal Protection claims. Id. at 1262, 1263. As to the Eighth Amendment claim, this Court concluded that Arthur's allegations and his filed affidavits created factual issues as to whether Alabama's new lethal injection drugs and procedures constituted such a significant change in the lethal injection protocol as to warrant a new limitations period and some factual development, including discovery. Id. at 1260-62.

As to the Equal Protection claim, this Court held that Arthur had "alleged enough facts to constitute a plausible Equal Protection claim because he alleges that Alabama has substantially deviated from its execution protocol" by failing to perform the pinch test as part of the required consciousness assessment. Id. at 1263. Accepting Arthur's particular allegations as true at the early Rule 12(b)(6) stage, this Court remanded for further factual development. Id.

In the years after this Court's 2012 remand, the parties conducted extensive discovery. Before the final hearing on Arthur's § 1983 challenge to pentobarbital, the State was no longer able to procure pentobarbital. In September 2014, the

State changed its lethal injection protocol to substitute midazolam hydrochloride for pentobarbital as the first drug, and rocuronium bromide for pancuronium bromide as the second drug in its three-drug cocktail.

IV. 2015: SECOND AMENDED COMPLAINT ABOUT MIDAZOLAM

On January 7, 2015, after receiving leave from the district court to amend his 2011 complaint, Arthur filed a complaint (the “Second Amended Complaint”), raising two claims. Arthur raised an Eighth Amendment claim, alleging that the ADOC’s use of midazolam as the first drug “creates a substantial risk of serious harm because . . . there is a high likelihood that midazolam will fail to render [him] insensate from the excruciatingly painful and agonizing effects of the second and third drugs.”

Despite challenging pentobarbital for more than three years, Arthur now suggested that he would prefer for the State to use a one-drug protocol of compounded pentobarbital in his execution instead of midazolam. Arthur’s Second Amended Complaint recycled his earlier argument about pentobarbital, which was that it would cause him to suffer a drop in blood pressure and then a heart attack. Arthur now made the same claim about midazolam, alleging that he had “clinically significant obstructive coronary disease” and that the State’s use of midazolam created a substantial risk that he would suffer a painful heart attack before losing consciousness.

Arthur's Second Amended Complaint also raised an Equal Protection claim, alleging that the ADOC had "materially deviated from their written execution protocol, impermissibly burdening Mr. Arthur's right to be free from cruel and unusual punishment." Arthur claimed that Alabama employs a lethal injection protocol that requires a "consciousness assessment" after the first drug is injected. This consciousness assessment has three parts: (1) calling the inmate's name, (2) gently stroking his eyelash, and (3) pinching his arm.

Arthur's Second Amended Complaint alleged that during "numerous executions," including the 2011 execution of Eddie Powell, witnesses did not observe the pinch test being performed. Arthur also alleged that the ADOC failed to adequately train its personnel in how to perform properly the consciousness assessment. He claimed that there existed a "significant risk that Defendants will deviate from their protocol in [his] execution," thus burdening his rights under the Fourteenth Amendment.

In March 2015, the district court elected to stay Arthur's § 1983 case challenging midazolam until after the U.S. Supreme Court issued its decision in Glossip v. Gross.⁴

⁴ The Alabama Supreme Court had set Arthur's execution date for February 19, 2015. On February 13, 2015, six days before his then-scheduled execution, Arthur sought a stay of execution. On February 17, the district court granted a stay "pending a trial and final decision on the merits." Defendants appealed, but this Court dismissed the appeal, finding that there was no abuse of discretion. With the issuance of the district court's July 19, 2016 final judgment in

V. JUNE 2015: GLOSSIP IS DECIDED

On June 29, 2015, the Supreme Court decided Glossip, holding that, in order to challenge successfully a method of execution, a plaintiff must plead and prove: (1) that the proposed execution method presents a risk that is “‘*sure or very likely to cause serious illness and needless suffering,*’ and give rise to ‘sufficiently *imminent dangers,*’” and (2) that there is “an alternative [method of execution] that is ‘feasible, readily implemented, and in fact significantly reduce[s] a substantial risk of severe pain.’” 135 S. Ct. at 2737 (quoting Baze, 553 U.S. at 50, 52, 128 S. Ct. at 1530-31, 1532) (alteration in original).

After Glossip, the district court subsequently lifted its stay of proceedings in this case, and the parties conducted some additional discovery.

On August 25, 2015, Arthur sought leave to file a third amended complaint, seeking (1) to switch back to compounded pentobarbital as an alternative method of execution, (2) to suggest sodium thiopental and a firing squad as additional alternative methods, and (3) to include additional allegations that midazolam was constitutionally inadequate. The district court granted Arthur leave to amend his complaint except as to the firing squad as an alternative method of execution. The district court concluded, inter alia, that “execution by firing squad is not permitted

favor of the State, that district court stay is no longer in effect. Accordingly, Alabama has now set an execution date for November 3, 2016.

by [Alabama] statute and, therefore, is not a method of execution that could be considered either feasible or readily implemented by Alabama at this time.” The district court set trial to begin on January 12, 2016.

VI. OCT. 2015: THIRD AMENDED COMPLAINT

On October 13, 2015, Arthur filed his Third Amended Complaint, alleging substantially identical claims to those raised in his Second Amended Complaint and requesting single-drug protocols of compounded pentobarbital or sodium thiopental as alleged feasible alternative methods of execution. The ADOC filed (1) a “Motion to Dismiss and, In the Alternative, Motion for Summary Judgment,” arguing that Arthur’s Eighth Amendment claim was untimely, that both claims should be dismissed for failure to state a claim, and that there was no genuine issue of material fact regarding whether compounded pentobarbital or sodium thiopental are known and available alternatives; and (2) a “Motion for Summary Judgment of Arthur’s Eighth Amendment Claim,” arguing again that compounded pentobarbital and sodium thiopental are not known and available alternatives and, further, that Arthur failed to present any evidence showing how compounded pentobarbital could be administered to prevent a painful heart attack.⁵ The ADOC’s motions included arguments regarding its present inability to obtain either pentobarbital or sodium thiopental.

⁵ The district court carried these motions into the trial and resolved them as moot in light of its April 15, 2016 order.

On January 7, 2016, the district court issued an order limiting the issues at trial to: (1) Arthur's Equal Protection claim, and (2) the availability of alternative methods of execution. The district court wrote that, if Arthur met his burden to prove an alternative method of execution that is feasible and readily available, the court would schedule a second phase of trial to address other issues, such as whether the use of midazolam "presents a risk that is sure or very likely to cause serious illness and needless suffering, and give rise to sufficiently imminent dangers."

The district court held a two-day bench trial on January 12 and 13, 2016.

VII. TRIAL EVIDENCE ABOUT ALTERNATIVE DRUGS

A. Arthur's Evidence

As noted above, although for four years Arthur had challenged pentobarbital as the first drug, one of his requested alternatives is now a single drug of compounded pentobarbital. Arthur called Dr. Gaylen M. Zentner to testify about compounded pentobarbital.⁶

Dr. Zentner obtained a Ph.D. in pharmaceuticals and was a licensed pharmacist in Utah for 40 years. After obtaining his Ph.D., Dr. Zentner taught pharmacy at the University of Connecticut, including teaching in the compounding

⁶ Dr. Zentner's November 16, 2015, declaration and his December 3, 2015, deposition—which reflect opinions and testimony essentially identical to the testimony he offered at the January 2016 trial—were admitted into evidence and considered by the district court.

lab. He worked for 13 years for a large pharmaceutical company in their “advanced drug delivery dosage form design unit.” He was later in charge of “all formulation and dosage form design” at another large pharmaceutical company. He had held two adjunct professorships in pharmacy. Since 2012, Dr. Zentner had worked as an “independent consultant” to the pharmaceutical industry. He testified that he had hands-on experience with manufacturing drugs and he had personally compounded drugs, although he had no experience preparing compounded pentobarbital sodium. The district court accepted Dr. Zentner as an expert witness in the fields of pharmaceutical chemistry, manufacturing, and compounding.

Dr. Zentner testified that, in his opinion, “the talent, expertise, and facilities to perform sterile compounding” existed within Alabama and that “all ingredients required to formulate a compounded preparation of pentobarbital sodium” were “readily available.”

Dr. Zentner explained that, in its pure form, pentobarbital sodium was a white powder, which could be compounded with other ingredients to form an injectable solution. He described pentobarbital as a “long-known and well-established drug product” that was “available to the medical sciences for decades.” He stated that Nembutal, the trade name for an industrially manufactured version of injectable pentobarbital sodium, was available for sale in the United States. He

said that pentobarbital sodium for injection was listed in the FDA's Orange Book, which listed all "approved drugs" in the United States. The Orange Book stated that there were no active patents on this drug, meaning that anyone was permitted to make it.

Dr. Zentner described the process of compounding a solution of pentobarbital sodium, calling it "a very simple matter" and a "straightforward process." During his testimony, Dr. Zentner relied on a 2015 article from the Journal of Pharmacological and Toxicological Methods that described the preparation of an injectable pentobarbital sodium solution by laboratory scientists that was essentially identical to the commercial product and was stable for one year.

Dr. Zentner contended that there were "numerous sources" for both the active and inactive ingredients needed to compound pentobarbital, including professional drug sourcing services. He said that these ingredients were available for sale in the United States and could be found through an Internet search. For example, Dr. Zentner found pentobarbital sodium listed on a drug manufacturer's product listing, which listing indicated that the drug was produced in the United States. He stated that other manufacturers might offer it for sale or the drug could be synthesized in a lab. He said that he knew of one lab that would be willing to synthesize the drug and he suspected "all of them would be willing."

Dr. Zentner stated that he conducted an Internet search of sterile compounding pharmacies in Alabama from the listing available on the Accreditation Commission for Health Care's Web site, and found 19 such pharmacies, although two were essentially the same company. Dr. Zentner gave his list to the ADOC. Dr. Zentner contacted two of these pharmacies, and they said that they did perform sterile compounding. Dr. Zentner admitted that he did not ask them whether they would be willing to compound pentobarbital for use in an execution by the ADOC. In his deposition, Dr. Zentner clarified that he did not ask these two pharmacies any questions whatsoever regarding compounded pentobarbital.

Accordingly, Dr. Zentner could only give his opinion that (1) pentobarbital sodium is available for purchase in the United States, and (2) there are compounding pharmacies that "have the skills and licenses to perform sterile compounding of pentobarbital sodium."

On cross-examination, Dr. Zentner admitted that he had not contacted any drug companies at all about their willingness to sell pentobarbital to the ADOC for executions. He also admitted that he was unaware that the company that currently owned Nembutal had restrictions in place to keep that drug from being purchased for use in lethal injections. Dr. Zentner admitted that he had no knowledge of whether the pharmacies that he found would be able to procure pentobarbital, nor

did he ever personally attempt to purchase the drug from a manufacturer. He stated that one drug synthesis company that he has a “long-term relationship” with was “willing to discuss” producing compounded pentobarbital. Dr. Zentner admitted that sodium thiopental is not listed in the FDA Orange Book, meaning it is not an approved product in the United States, although he stated that it is “available offshore and conceivably could be imported.”

B. ADOC’s Evidence

Anne Adams Hill,⁷ ADOC’s general counsel, testified on behalf of the agency. Hill explained that, as part of her job, she was “routinely” in contact with other states’ departments of corrections and that the subject of pentobarbital and lethal injection came up in her conversations. Her job required her to constantly look for ways to procure new drugs and new sources for drugs.

Hill was aware that, in 2015, Georgia, Missouri, Texas, and Virginia executed inmates using a single-drug protocol of compounded pentobarbital. Hill testified that she contacted representatives from the departments of corrections in these four states in the fall of 2015 in an effort to obtain compounded pentobarbital. With respect to these four states she recalled asking “specifically if they had compounded pentobarbital and, if they did, if they would be willing to

⁷ Arthur’s counsel deposed Hill three times in this case. Hill also executed an affidavit, offering substantially the same testimony she provided at trial.

provide it to the [ADOC] and, if not, if they would provide us their source.” All four refused.

Hill stated that she was not aware of whether these four states had exclusive contracts with their drug sources, but that all four had refused to name those sources.

Hill reiterated her deposition testimony that, in between September 2014 and November 2015, she had contacted 11 potential sources of pentobarbital, including those 4 states and 7 pharmacies within Alabama. She asked these pharmacies whether they would be willing to compound pentobarbital and provide it to the ADOC, and they all said no.

Hill also testified that, in December 2015, she reached out to all of the 18 pharmacies on Dr. Zentner’s list⁸ regarding their willingness and/or capability to compound pentobarbital for the ADOC’s use. None of the pharmacies agreed to provide the drug to ADOC, with two saying they were incapable of obtaining the ingredients, another claiming that it no longer did compounding, yet another saying it only produced one drug, and the remainder stating that “they’re not able to compound pentobarbital.” In total, Hill testified that she reached out to “at least 29” potential sources in an attempt to procure compounded pentobarbital for the ADOC.

⁸ Although Dr. Zentner’s list included 19 pharmacies, two of the pharmacies were simply two locations of the same entity.

Hill admitted that she did not contact drug manufacturers, buying groups, or drug synthesis labs in an effort to find pentobarbital, nor did she conduct any Internet searches to obtain the drug.

Hill also testified that she had made no effort since September 2014 to obtain sodium thiopental and made no efforts to determine whether it could be imported. Hill said that she did not think sodium thiopental was available in the United States, and she was not aware of any other state that had access to sodium thiopental.

VIII. TRIAL EVIDENCE ABOUT CONSCIOUSNESS ASSESSMENT

Since October 2007, the ADOC's written execution protocol has included a three-step consciousness assessment, to be performed after the administration of the first drug, but before administration of the second and third drugs. The purpose of this assessment is to ensure that the inmate has been rendered unconscious by the first drug. The assessment has three parts: (1) calling the inmate's name; (2) fluttering the inmate's eyelash; and (3) pinching the inmate's arm.

A. Arthur's Evidence on the Consciousness Assessment

Arthur presented four witnesses who attended prior executions at Holman Correctional Facility, where Arthur is housed. These witnesses included three attorneys who worked for the Federal Defenders Office for the Middle District of Alabama and the videotaped deposition of Don Blocker, a volunteer lay minister at

Holman. To varying degrees, they all testified that they did not see prison staff perform the pinch test at these executions.⁹ All four witnessed the executions from the viewing room reserved for the inmate's family, and they had a clear view of the inmate's left side.

Two of the attorneys, however, admitted that their view of the inmate was obstructed when a correctional officer stepped up to the gurney to perform the consciousness assessment. All three attorneys admitted that, at the time of the executions they saw, they were unaware that there was even a consciousness assessment that was supposed to be performed. Similarly, Blocker acknowledged three times on cross-examination that it was "possible" that he did not see parts of the consciousness assessment that were performed.

At trial, Arthur also presented Dr. Alan David Kaye, who holds a medical degree and a Ph.D. in pharmacology.¹⁰ He completed a residency in anesthesia and was currently employed as the chairman of the anesthesia department at Louisiana State University ("LSU"). He is the director of anesthesia services at LSU's "flagship" hospital, has authored articles and books, and maintains an active

⁹ Two of the attorneys testified about the execution of Eddie Powell in 2011, and the other attorney testified about the execution of Michael Jeffrey Land in 2010. Blocker testified to the executions of seven other inmates from 2009 until 2011.

¹⁰ Dr. Kaye's November 16, 2015, declaration and his December 10, 2015, deposition—which reflect opinions and testimony essentially identical to the testimony he offered at trial—were admitted into evidence and considered by the district court.

anesthesiology practice. The court accepted Dr. Kaye as an expert witness in the field of anesthesiology.

Dr. Kaye explained that “sedation” is understood by people in his field as a continuum. This can range from “mild sedation in which a person can easily respond to verbal cues,” to moderate sedation, deep sedation, and, finally, anesthesia, “the deepest level of the continuum.” In his opinion, Alabama’s consciousness assessment “is inadequate to measure deep sedation or anesthesia.” While Dr. Kaye has not witnessed any executions in Alabama, he opined that the ADOC had not “adequately administered” the assessment that was in place. Dr. Kaye gave four reasons for his opinion.

First, from reviewing the testimony of certain ADOC personnel, Dr. Kaye opined that “it appears that the consciousness assessment may not have been performed at all in a number of prior executions.” Second, statements given by certain ADOC personnel gave the impression to Dr. Kaye that their training was inadequate because they did not know how to properly perform the pinch test and/or communicate the results of the assessment. Third, again based on the prior testimony of certain ADOC officials, it was Dr. Kaye’s opinion that members of Alabama’s execution team do not pinch inmates with sufficient force. Fourth, it appeared to Dr. Kaye that members of the execution team did not adequately communicate the results of the consciousness assessment.

Dr. Kaye testified that, in anesthesiology medical practice, you have to perform “the hardest pinch that you can pinch,” hard enough to bruise. Dr. Kaye explained, “As firm and as hard as you can. Not in a mild way; not in a moderate way. In a very significant way.” Dr. Kaye testified that the ADOC personnel’s testimony—that (1) “We don’t inflict pain on people”; (2) “I pinch hard enough that [a conscious person] would jerk their arm away from me”; and (3) “[I pinch] hard enough to wake [the inmate] if he’s asleep”—are all inadequate to meet the proper threshold and speaks to the lack of training and inadequacy of the safeguard.

B. ADOC’s Evidence on the Consciousness Assessment

The ADOC presented the testimony, either live or through deposition designations, of six current or former ADOC personnel, all of whom testified that all parts of the consciousness assessment were performed at every execution that they witnessed and/or participated in.

At trial, Hill, the ADOC’s general counsel, testified that she had attended nine or ten executions since the implementation of the consciousness assessment and observed all parts of the assessment being performed in all of those executions. Hill stated that, in her role as the ADOC general counsel, she had never received any information that the assessment was not performed.

Hill testified that she viewed the executions from the commissioner's viewing room, which is positioned directly in front of each inmate's feet as he lies on the gurney, and that her view was not obstructed. Hill was present at Powell's execution, and she testified that all parts of the assessment were performed at Powell's execution. She said that the correct and complete performance of the consciousness assessment is something she looks for in the executions that she attends.

Hill stated that correctional officers are aware that the consciousness assessment is a mandatory part of the execution protocol, and they are trained on how to perform it. They are instructed to perform the pinch test on the back of the inmate's left arm and to "pinch hard." Hill stated that correctional officers practice performing the consciousness assessment before an execution. They are also trained to look for "any reaction" from the inmate and to report any reaction.

The ADOC also presented the deposition testimony of: (1) G.C., Holman's warden from 2002 until 2009; (2) A.P., the Holman warden who succeeded G.C.; (3) D.C., the former captain of Holman's execution team; (4) W.H., the execution-team captain who succeeded D.C.; and (5) C.S., the chaplain at Holman. The wardens and captains testified that they were trained on the consciousness protocol, knew it was mandatory, and understood its purpose and importance.

The wardens both testified that they were present at executions and all parts of the assessment, including the pinch test, were performed at every execution that they witnessed. Similarly, the captains of the execution team testified that they personally performed every aspect of the assessment, including the pinch test, at every execution. The Holman chaplain testified that he has witnessed approximately 40 executions at the prison since 1997. He witnessed the execution of Eddie Powell, and remembered seeing the consciousness assessment performed.

G.C. testified that he was the warden when the consciousness assessment was implemented and that ADOC representatives explained the assessment to him and told him when it should be performed. He testified that a team consisting of himself, D.C., Hill, and former ADOC Commissioner Kim Thomas all agreed that inmates should be pinched on the back of the arm because it was “inconspicuous” but “fairly sensitive.” G.C. testified that he sat in the control room with another officer during executions and, on the warden’s command, that officer would “radio[] to the correctional personnel that’s in the execution chamber that it’s time to perform the consciousness test.” If there was any reaction from the inmate, the procedure was for the officer in the execution chamber to radio back to the officer in the control room, but if the officer performing the consciousness assessment stepped away from the inmate, “that was [his] cue to proceed” with administration

of the second and third drugs. G.C. testified that, during his tenure as warden, no inmate ever reacted to administration of the first drug.

A.P. succeeded G.C. as warden and also testified that, once the officer performing the consciousness assessment stepped away from the inmate, he knew he could proceed with the execution.

D.C. was the captain of the execution team at Holman until his retirement in 2009 and was the captain when the consciousness assessment was introduced. It was his practice to do all three steps of the assessment simultaneously. He testified that, if the inmate showed any reaction to the consciousness assessment, he would turn and face the warden. In performing the pinch test, D.C. would pinch hard enough that, “if it was a conscious person, they would jerk their arm away from me.” He never received any reaction in the nine or ten executions in which he participated.

W.H. succeeded D.C. as the execution-team captain at Holman in 2009. As captain, W.H. would pinch the inmate’s arm “hard enough to wake him if he’s asleep.” W.H. testified that he received oral, written, and physical training regarding the consciousness assessment from A.P., D.C., and another officer. W.H. testified that A.P. instructed him to stay at his place by the gurney if the inmate reacted. W.H. stated that no inmate ever reacted after he performed the consciousness assessment.

IX. DISTRICT COURT'S APRIL 15, 2016 ORDER

After setting out the factual background and procedural history of the case, the district court proceeded, first, to consideration of Arthur's Eighth Amendment claim. The district court summarized the trial testimonies of Dr. Zentner and ADOC attorney Hill on the issue of alternatives to midazolam—namely, pentobarbital and sodium thiopental. The district court then made these findings of fact, among others:

- (1) The ADOC's supply of commercially manufactured pentobarbital, Nembutal, expired around November 2013, and the commercial supplier of Nembutal is prohibited from providing it for use in executions. Thus, Nembutal is no longer available to the ADOC.
- (2) When a drug is no longer commercially available, but remains listed in the FDA Orange Book, a licensed pharmacist may legally create the drug through compounding or some other process.
- (3) Pentobarbital sodium is the active ingredient in compounded pentobarbital, and there is a formulation for compounding an injectable solution of pentobarbital sodium.
- (4) Georgia, Missouri, Texas, and Virginia have all performed executions using compounded pentobarbital after Nembutal became unavailable.

(5) The ADOC has attempted to obtain compounded pentobarbital for use in executions from the departments of correction in all four of these states, but those efforts were unsuccessful.

(6) The ADOC has contacted all of the accredited compounding pharmacies in Alabama to ascertain whether any of these pharmacies would be willing and able to provide compounded pentobarbital to the ADOC, but those efforts have been unsuccessful.

(7) Thus, pentobarbital is not feasible and readily implemented as an execution drug in Alabama, nor is it readily available to the ADOC, either compounded or commercially.

(8) Per the FDA Orange Book, sodium thiopental is no longer legally available in the United States, and there is no evidence that the FDA has approved the import of sodium thiopental from other countries.

(9) Thus, sodium thiopental is unavailable to the ADOC for use in lethal injections.

The district court then made these conclusions of law:

(1) Arthur has the burden to plead and prove a known and available alternative method of execution under Glossip. It is Arthur's burden to identify an alternative method that is both feasible and readily implemented.

(2) To meet his burden, Arthur proposed execution with a one-drug protocol of either compounded pentobarbital or sodium thiopental.

(3) Dr. Zentner's testimony that the active ingredient for pentobarbital is "available for purchase" and that there are compounding pharmacies that could "hypothetically" perform compounding did not meet Arthur's burden "to prove that compounded pentobarbital is readily available to the ADOC for use in lethal injections. That it should, could, or may be falls far short of Arthur's burden."

(4) Further, Arthur's proof that (i) other states have procured compounded pentobarbital for use in their executions, (ii) "with effort it can be compounded," and (iii) "indications on the internet" are that pentobarbital is available for sale all fail to meet Arthur's burden to show that the drug was readily available to the ADOC. "At best, it proves a 'maybe.'"

(5) The fact that compounded pentobarbital was available to other states "at some point over the past two years does not, without more, establish that it is available to Alabama."

(6) Although the ADOC did not have the burden of proof on this issue, Hill's testimony lent "further support for the finding that compounded pentobarbital is not presently available to the ADOC."

(7) Arthur also failed to carry his burden of showing that sodium thiopental was an available alternative because sodium thiopental is not legally available in the

United States and evidence of its possible availability overseas does not satisfy Glossip.

(8) Therefore, “Arthur sufficiently pleaded an Eighth Amendment claim, but he failed to meet his burden of proof. Defendants are entitled to judgment in their favor on Arthur’s Eighth Amendment claim.”¹¹

The district court then proceeded to evaluate Arthur’s Equal Protection claim, which is based on the consciousness assessment. After summarizing the evidence on this claim, the district court made these findings of fact, among others:

(1) In October 2007, the ADOC adopted a consciousness assessment in order to provide an “additional safeguard to lethal injection executions to ensure that an inmate is unconscious” before the second and third drugs are administered.

(2) While there was conflicting testimony as to whether the ADOC performed the pinch test at all executions after October 2007, the district court credited the testimony of ADOC’s witnesses over that of Arthur’s witnesses. The district court gave two reasons for these findings. First, Hill and the other ADOC witnesses are all present or former ADOC employees who were knowledgeable about the consciousness assessment and were trained “to understand how, why, and when it is performed.” Second, it found Arthur’s witnesses, while “truthful from their

¹¹ The district court rejected Arthur’s contention that the State had the burden to prove his requested alternative of compounded pentobarbital was unavailable. But the district court also found that the State in fact had proven its inability to obtain compounded pentobarbital.

perspective,” to be “less direct and less probative” because (i) testimony that they “didn’t see” something is less probative than testimony that it “didn’t happen”; and (ii) Arthur’s witnesses had obstructed views of the execution and/or did not know to look for the various steps of the consciousness assessment.

(3) Based on the evidence and these findings, the district court found that “the evidence establishes that the pinch test was performed in all executions that the ADOC has conducted after the ADOC adopted the consciousness assessment and incorporated it as a mandatory part of the written execution protocol.” The district court found that any contradictory evidence did not “overcome” the direct testimony from current and former ADOC wardens and other personnel who said “without equivocation that they performed the assessment.”

(4) Further, because the consciousness assessment had been performed in every instance, the district court found that there was no deficiency in training, practice, or procedure.

The district court then made these conclusions of law, among others:

(1) The evidence that Arthur presented was “insufficient to prove that that [sic] the ADOC had inconsistently applied the protocol’s mandatory consciousness assessment by failing to perform the pinch test during some executions, or has otherwise deviated substantially from its execution protocol.”

(2) Further, Arthur’s Equal Protection challenge “to the general adequacy of the ADOC’s consciousness assessment, claiming that it should meet certain training and medical standards but does not, also fails.” In support, the district court relied on language from Baze and Glossip to hold that “[t]he Eighth Amendment does not require that such medical training and standards or procedures be employed,” noting that the Supreme Court held in Baze that a consciousness assessment “much simpler than the one implemented by the ADOC” was not required under the Eighth Amendment. Indeed, the district court wrote, there is no constitutional requirement that a state perform a consciousness assessment at all.

(3) Accordingly, “Arthur’s attempt to apply a medical standard of care to execution procedures and training for them, in this case, procedures that are not required by the Eighth Amendment, does not state a plausible equal protection claim. This principle is applicable to Arthur’s Equal Protection claim challenging the ‘adequacy’ of the consciousness assessment and the training therefor, including the force used in the pinch test.”

(4) For these reasons, the district court held that the ADOC was entitled to judgment on the Equal Protection claim.

After entering judgment in the ADOC's favor, the only issue remaining concerned the interplay of the current protocol with Arthur's alleged idiosyncratic health issues and medical condition, which the district court would address later.¹²

X. AS-APPLIED CLAIM

On May 6, 2016, as to Arthur's as-applied claim based on his alleged health issues, the ADOC filed a motion for judgment on the pleadings or, in the alternative, for summary judgment. ADOC's motion argued that, to the extent that Arthur even adequately alleged an Eighth Amendment as-applied challenge based on his health concerns, the Defendants were entitled to summary judgment because (1) Arthur had failed to produce evidence of a genuine disputed fact that the use of midazolam is "sure or very likely to cause serious illness or needless suffering" by causing him to experience a painful heart attack; (2) Arthur had still failed to produce evidence of a genuine disputed fact that there are known and available alternatives that are feasible, readily implemented, and significantly reduce a substantial risk of severe pain; and (3) the district court should reject the "sham affidavits" offered by Arthur in support.

The ADOC attached to its motion a November 16, 2015, declaration by Dr. J. Russell Strader, Jr., Arthur's witness, and a transcript of Dr. Strader's December

¹² On May 16, 2016, Arthur appealed the district court's April 15, 2016, order to this Court. This Court later granted Arthur's motion to dismiss this appeal as premature, without prejudice to Arthur's refileing a timely notice of appeal upon entry of final judgment in the district court.

8, 2015, deposition. Notably, Dr. Strader's November 2015 declaration about midazolam is his third declaration filed in this case. We first review Dr. Strader's two prior declarations about pentobarbital before addressing his declaration about midazolam.

A. Dr. Strader's 2013 and 2015 Declarations About Pentobarbital

In his first declaration back in March 2013, Dr. Strader criticized the use of pentobarbital for Arthur's execution. Although Arthur wants pentobarbital used now that Alabama cannot obtain it and must use midazolam, it is relevant to consider Arthur's previous position about pentobarbital. Back in 2013, Dr. Strader opined that (1) Arthur's "likelihood of having clinically significant obstructive coronary disease ["CAD"] is at least 70%"; (2) for people with CAD, the use of a 2,500-mg dose of pentobarbital was likely to induce a rapid and dangerous reduction in blood pressure, thereby triggering a heart attack; (3) the heart attack would occur more quickly than the appropriate sedation; and (4) "[g]iven the slower onset of the sedative effects of pentobarbital, it is likely that [Arthur] would experience the pain of said heart attack until such time as the sedative effects have onset to a sufficient degree to diminish the pain of the heart attack." (Emphasis added). In short, Dr. Strader's opinion about pentobarbital was that it would take a longer duration of time to induce appropriate sedation than that required for the onset of myocardial ischemia/infarction.

In his March 2013 declaration about pentobarbital, Dr. Strader stated that he was a board-certified cardiologist and the current Chief of Cardiovascular Services at a Texas hospital. As part of his routine clinical practice, he assessed the cardiovascular risk of patients scheduled to undergo surgery and anesthesia and, in particular, he assessed the likelihood that a patient would suffer a heart attack during or immediately after a cardiac procedure.

Dr. Strader's declaration included explanations of the "Hemodynamic and Anesthetic Actions of Pentobarbital and Thiopental," along with an overview of the relevant aspects of cardiovascular anatomy and physiology, coronary atherosclerosis, and myocardial ischemia/infarction. His declaration included an explanation that a coronary artery needs to be 70% obstructed before it is hemodynamically significant. It also stated that, "[i]n clinical practice, myocardial ischemia and infarction can occur due solely and exclusively to a drop in blood pressure" and that this drop in blood pressure may be due to anesthesia.

Dr. Strader's March 2013 declaration admitted that he had not examined Arthur but had reviewed his medical records only up until 2009. Although Dr. Strader's declaration did not indicate precisely what records he reviewed, approximately 68 pages worth of Arthur's medical history was included with the ADOC's summary judgment motion. These medical records indicate that Arthur has repeatedly refused to be seen by a doctor since at least 2009. Arthur was seen

in the prison infirmary on January 17, 2009, where he complained of chest pain and atrial fibrillation. Arthur, however, refused medical care on this occasion, including a refusal to submit to an electrocardiogram (“EKG”) on January 20, 2009.

The medical records include dozens of similar waivers, signed by Arthur, refusing various medical treatments. These waivers extend from 2009 until 2015. There is no indication that Dr. Strader, as of his first declaration in 2013, had access to or reviewed any probative post-2009 medical records for Arthur. There is also no reference, much less a diagnosis, to Arthur’s ever having had a heart attack in his medical records.

According to Dr. Strader’s review of Arthur’s medical records as of 2009, Arthur was then 71 years old, with a history of hypertension (high blood pressure) and atrial fibrillation (irregular heart rhythm). In June 1999, Arthur visited the prison clinic and he complained of being short of breath, sweaty, and dizzy. According to the prison report, an EKG was performed at that time, and it was “abnormal.” Dr. Strader opined that these symptoms are “identical to those experienced by persons with ongoing myocardial infarction.”

In October 2004, Arthur was hospitalized for abdominal surgery, and he suffered from atrial fibrillation during that hospitalization. However, an echocardiogram performed around that time came back “essentially normal.”

According to Dr. Strader, an EKG dated January 15, 2009 showed “atrial fibrillation with a rapid ventricular response, along with Q waves in the inferior leads (leads II and aVF).” Dr. Strader opined that, “[t]he abnormalities on this [EKG]” indicated that Arthur had suffered a prior heart attack. A request for a cardiology consult, dated January 26, 2009, indicated that Arthur was experiencing chest pain and rapid heart rate.

After reviewing these medical documents through January 2009, Dr. Strader opined that:

Arthur’s abnormal [EKG] showing evidence of a prior myocardial infarction,¹³ history of recurrent atrial fibrillation, age, presence of hypertension, and symptoms of recurrent chest pain, all of which are independent risk factors for coronary heart disease, confer a risk of having clinically significant obstructive coronary artery disease of at least 70% at a minimum, and possibly greater.

Dr. Strader opined that the use of pentobarbital would cause a drop in blood pressure and a heart attack in Arthur before the onset of the drug’s sedative effect. Dr. Strader admits the sedative effect from pentobarbital will occur but opines that Arthur will experience pain from a heart attack “until such time” as the sedative effect reduces the pain.

After Alabama changed the first drug from pentobarbital to midazolam, Dr. Strader switched positions and wrote a second declaration. This time, in that

¹³ Presumably, Dr. Strader is referring to the January 2009 EKG.

second declaration, Dr. Strader now suggested pentobarbital should actually be used in Arthur's execution but only as a one-drug protocol. Dr. Strader opined that if pentobarbital were used as a one-drug protocol and "administered gradually and with due consideration for Mr. Arthur's medical condition," he did not believe that Arthur would suffer a heart attack before being properly anesthetized. Dr. Strader's second declaration was conclusory and gave no specifics on what "administered gradually" would mean or what steps would be necessary as "due consideration for Mr. Arthur's medical condition."

B. Dr. Strader's Nov. 16, 2015 Declaration

In his third declaration, Dr. Strader now criticizes the use of midazolam for use in executions, using precisely the same reasoning (and often the exact same wording) used in his earlier declaration condemning pentobarbital. Specifically, Dr. Strader now opines that (1) Arthur's likelihood of having obstructive CAD is at least 70%; (2) for patients with obstructive CAD, a large bolus dose of midazolam is "highly likely" to rapidly reduce blood pressure in patients with this disease, thereby triggering a heart attack; (3) the heart attack would occur before the appropriate sedation from midazolam; and (4) given the length of time between the onset of heart attack and the onset of sedation, "it is likely that Mr. Arthur would experience the pain of the heart attack until the sedative effects take effect to a sufficient degree to diminish the pain of the heart attack, which could occur several

minutes after the onset of the heart attack.” While the drug at issue was different, Dr. Strader’s opinion and reasoning remained the same—that Arthur was “likely” to experience the pain of a heart attack before being fully sedated.

Dr. Strader’s November 2015 declaration is essentially a recycled version of his original March 2013 declaration, but with the following added information about midazolam:

- As part of his routine clinical practice, Dr. Strader administers “midazolam to patients for the purpose of achieving sedation for invasive cardiac procedures.” Dr. Strader has performed approximately 3,500 invasive cardiac procedures in cardiac patients using midazolam as a sedative.
- As to Arthur’s likelihood of having CAD, Dr. Strader updated Arthur’s age to 73 years old, deleted his earlier declaration’s reference to Arthur’s normal echocardiogram report in October 2004, and added a paragraph regarding Arthur’s family history of “heart trouble.”
- In Dr. Strader’s clinical experience, “where midazolam in small doses (2-5 mg) is used to sedate patients undergoing invasive cardiac procedures, midazolam’s sedative effects generally take 5 minutes or more to take effect” and the hemodynamic effects of the drug can occur more quickly, within 1-2 minutes. (Emphasis added). He stated that, when used in clinical doses, midazolam typically produces a 10-20% drop in blood pressure. Dr. Strader opined that, when

midazolam is given in the large 500 mg bolus dose contemplated by the ADOC protocol, it is “highly likely that such drop in blood pressure would occur more quickly than it would occur in the administration of a clinical dose.”

- Dr. Strader explained that the hemodynamic effects of midazolam occur more quickly than the sedative effects because the effect on vasculature is immediate, while the drug must travel to and affect the brain before sedation takes place. Dr. Strader, however, acknowledged that there is no “institutional experience” regarding a 500-mg dose of midazolam.

C. Dr. Strader’s Dec. 8, 2015 Deposition

In his 2015 deposition, Dr. Strader elaborated on this opinion:

1. Likelihood of Arthur having CAD

Dr. Strader reviewed Arthur’s medical records but admitted that he had never personally examined Arthur, had never spoken to Arthur, and had never spoken to any doctors who had treated Arthur.

Based on the medical records provided to him, Dr. Strader noted that Arthur had high blood pressure, atrial fibrillation, and abnormalities on his EKGs that were “highly suggestive of coronary disease.” Dr. Strader testified regarding the incident in June 1999 (where Arthur visited the prison clinic with complaints of being short of breath, sweaty, and dizzy and then had an EKG come back with

“abnormal” results), and he stated that Arthur’s symptoms and his abnormal EKG made it “possible” that Arthur had a heart attack back in 1999.

Dr. Strader reiterated his opinion from his declaration that the abnormal EKG, taken on January 15, 2009, was “diagnostic” of Arthur having suffered a previous heart attack, although Dr. Strader could not say when this prior heart attack occurred. When asked if he could diagnose a previous heart attack based just on an EKG, Dr. Strader replied, “Yes. Absolutely.” Dr. Strader also referenced the January 2009 request for a cardiology consult contained in Arthur’s medical records, but admitted that he did not know whether Arthur was ever actually evaluated by a cardiologist.

2. Midazolam Leads to a Drop in Blood Pressure

In Dr. Strader’s opinion, if you administered even a 100-mg dose of midazolam to a patient, such large doses “are expected to have . . . rapid, significant hemodynamic effects.” He explained that “hemodynamic effect” means a drop in blood pressure. To correct this issue, he suggested that doctors would give “pressors,” very large amounts of IV fluids and medication, to stabilize the blood pressure.

Dr. Strader testified that, in his clinical practice, drops in blood pressure from 2-5 mg doses of midazolam can occur “within just a minute or two, sometimes sooner.” He went on to say that, “extrapolating off of that experience

to this very large dose, you would expect to see an extremely rapid and very large drop in blood pressure.”

He explained that, for people with obstructed arteries, this rapid blood-pressure drop could result in a heart attack, because “you have to maintain a certain amount of pressure in order to keep fluid going through a tube that’s got a fair amount of blockage in it. This is . . . applied physics.” He further explained that older people, starting at around age 70, tended to have bigger drops in blood pressure in response to the administration of midazolam.

In his deposition, Dr. Strader reviewed the medical articles and other material that he cited in his November 2015 declaration, which he stated lent support to the idea that midazolam leads to a drop in blood pressure. Dr. Strader admitted that (1) none of the articles or materials dealt with such high doses, and (2) none of the articles or materials explicitly stated that midazolam should not be used on people with CAD.

3. The Heart Attack Would Occur Before Sedation

Dr. Strader stated that, based on his clinical experience, the sedation effects of a clinical dose of 2-5 mg of midazolam typically take about five minutes to take effect. He testified that he would typically use this dosage of midazolam on patients before “invasive cardiac procedure[s].” (Emphasis added). When a patient is administered a clinical dose of midazolam (2 to 5 mg), the patient goes

into a deep sleep. They can be aroused and spoken to, but they are “very comfortable.” (Emphasis added). He explained that in his clinic, he would titrate the midazolam, giving it in small doses until appropriate sedation was achieved. Dr. Strader admitted that he normally gave some sort of pain medication, such as fentanyl, along with the midazolam, but that this was not required. He could proceed with the procedure using midazolam alone, although it would require a higher dose. He stated that the largest dose of midazolam he ever administered to a patient was a 20-mg dose, used because the patient had no sedative response to the medication.

While he opined that a 100-mg dose of midazolam would cause sedation within “three to five minutes,” he could not give an exact time because such a dose is “far outside of the realm of anybody’s clinical experience” and, indeed, the time to sedation “could be a very wide range.” When asked about a 250-mg or 500-mg dose of midazolam, Dr. Strader stated that, “I’m not sure anybody really knows to what degree [sedation] would onset.” Dr. Strader then indicated he would need to defer to an anesthesiologist about the onset time of sedation from a 500-mg dose of midazolam:

Q. Now, in an execution, is it your opinion that it would take five minutes before a person becomes unconscious if they’re administered 500 milligrams of midazolam?

[Objection]

A. No, I don't think I gave any opinion as to—as to the timing for . . . consciousness to abate. . . . In a clinical setting, I would defer that to an anesthesiology colleague who is, you know, more familiar with the concept of consciousness. That's outside my realm of practice. Again, I think you'd see a very rapid decrease, almost instantaneous decrease in blood pressure, and hemodynamic effects would be virtually instantaneous.

Q. But regarding the sedative effects, you just don't know how long?

A. I think it would take longer; how much longer, I don't know.

...

Q. But you can't give us a specific amount of time?

A. No, sir.

Q. Okay.

A. I don't think anybody can give you a specific amount of time.

(Emphasis added).

Dr. Strader later stated he was aware that anesthesiologists use midazolam to induce anesthesia but he had never done that as it was outside the scope of his area of practice:

Q. Have you ever known an anesthesiologist to use midazolam to cause unconsciousness?

[Objection]

A. I would assume that anesthesiologists use midazolam in part of

their routine practice for the—you know, in anesthesia. I don't know the details of what they do, or when they choose, or why they choose what they choose, so . . .

Q. But are you aware of it being used to induce anesthesia?

[Objection]

A. I'm aware that it's approved for that use, and I think some anesthesiologists use it for that purpose. I don't have any direct knowledge of what they do.

Q. Okay. So you're never involved in a procedure where an anesthesiologist might use midazolam to induce anesthesia?

[Objection]

A. No, I don't—that's outside the scope of my clinical practice. You know, I just let them choose what they need to choose[.]

(Emphasis added). Similarly, when asked if he knew whether midazolam “is ever used to maintain anesthesia,” he replied that the drug “carries an indication for that [, but] I wouldn't have direct knowledge any particular anesthesiologist's use of it for that reason.”

Dr. Strader explained that anesthesiologists were not present when he performed his invasive cardiac procedures, and there was no policy or procedure on how much midazolam to give patients. Dr. Strader reiterated that he uses midazolam “in patients with coronary disease all the time in routine clinical practice.”

4. Gradual Administration of Pentobarbital

Despite stating in his first declaration that a 2,500-mg bolus dose of pentobarbital was also likely to induce a heart attack, Dr. Strader reiterated his conclusion from his second declaration that, if pentobarbital were administered gradually as part of a one-drug protocol, he did not believe that Arthur would suffer a heart attack before being properly anesthetized. Dr. Strader admitted he would not know how to administer 2,500 mg of pentobarbital gradually and he would defer on that matter to an anesthesiologist:

A. I wouldn't know how gradual to do it. I know that the analogy holds to what we do with cardiac patients in the cath lab with midazolam. You know, again, we use small doses gradually over longer periods of time in order to prevent acute onset of myocardial ischemia and acute drops in blood pressure.

Q. So when you're talking about 2,500 milligrams, how long would that take – [Objection] – if you administered the drug gradually?

[Objection]

A. I would have no idea.

Q. I mean, are we talking minutes or hours – [Objection] – or do you know?

A. I would – I would defer that to an anesthesiologist who has more experience with the drug.

Q. Well, I mean, you're the one making the sworn declaration, and you said, "administered gradually," and I'm asking you, you know, how gradually would you have to administer it?

[Objection]

A. Yeah. Again, I think it's the general concept that gradual administration in small doses, you know, is the general paradigm to prevent adverse effects. Exactly what "gradual" would be defined as in this instance I wouldn't – I wouldn't know specifics or have specifics to recommend.

Dr. Strader also would not know how to administer a large dose of midazolam gradually but would defer to an anesthesiologist:

Q. Okay. Do you have the same opinion on if midazolam is used in a one-drug protocol – [Objection] – if it was administered gradually?

A. I think the general paradigm holds in order to avoid adverse effects with these medications, you administer them in low doses slowly. To what extent midazolam would produce full unconsciousness or anesthesia, again, I would defer that to an anesthesiologist. It's outside of my scope of practice.

(Emphasis added).

D. Dr. Buffington's Nov. 23, 2015 Declaration

As to midazolam, the ADOC offered a declaration from Dr. Daniel Buffington, an expert witness in the field of pharmacy. Dr. Buffington is a clinical pharmacologist who holds a Doctor of Pharmacy and Master of Business Administration degrees. He is on the faculty of the University of South Florida Colleges of Pharmacy and Medicine, and he is also the president of the American Institute of Pharmaceutical Sciences.

Dr. Buffington agreed with Dr. Strader that a common clinical dosage of midazolam is 2 to 5 mg, and that the 500-mg dosage contemplated in the ADOC's protocol "is well beyond the dosage of any existing therapeutic application." Dr. Buffington explained that, when clinical doses of midazolam (2-5 mg) are used as an "anesthetic induction agent, sedation occurs . . . within 2-2.5 minutes without narcotic pre-medications or other pre-medications with sedative effects."

Dr. Buffington stated that the medical literature "contradicts Strader's theoretical concerns" and "[t]here is no scientific or medical evidence to support the theory or concerns that midazolam (IV), at low or high dosages, would result in a significant hypotensive event . . . prior to the onset of sedation, or is capable of inducing or worsening ischemic cardiac damage, acute cardiac events, excruciating pain and/or suffering."¹⁴ According to Dr. Buffington, a rapid infusion of midazolam could result in induction of anesthesia in as little as 30 seconds.

E. Midazolam Package Insert

The ADOC also submitted the midazolam manufacturer's package insert with its summary judgment motion. The insert states that sedation is achieved in 3 to 5 minutes after IV injection, and that, when midazolam is given as an anesthetic

¹⁴ We note that Arthur moved to have Dr. Buffington's declaration excluded from the evidence, but the district court never granted that motion. Ultimately, we do not need to rely on this declaration, but we include it for completeness.

induction agent, “induction of anesthesia occurs . . . in 2 to 2.5 minutes without narcotic premedication or other sedative premedication.” (Emphasis added).

F. Dr. Strader’s March 29, 2016 Declaration

In February 2016, the district court ordered the parties to meet and confer about a possible modified execution protocol. On March 8, 2016, as part of these negotiations, Arthur’s counsel sent a letter to the ADOC about gradual administration of midazolam, requesting a trained professional to use several pieces of medical monitoring equipment and to administer other medication:

[Arthur’s] position is that a protocol designed to administer midazolam gradually and with due consideration for Mr. Arthur’s medical condition—including with medical monitoring of Mr. Arthur’s health by a trained professional during the protocol with the use of an electroencephalogram, an electrocardiogram, a bispectral index monitor and/or other appropriate methods [which] may reduce to some extent the likelihood of Mr. Arthur suffering the pain of a heart attack during administration of the protocol, although it would not ameliorate those risks entirely or address the other previously identified reasons why the use of midazolam in a three-drug execution protocol is violative of Mr. Arthur’s constitutional rights. Such a modified protocol may also require the administration of other medication to prevent cardiac complications.

(Emphasis added).

Arthur also submitted Dr. Strader’s fourth declaration, dated March 29, 2016. Dr. Strader stated that he was ethically prohibited from suggesting modifications to a lethal injection protocol. Accordingly, he merely explained

what precautions are taken and procedures followed when administering midazolam in a clinical setting. Those precautions are:

- administration of midazolam “at a gradual rate closer to that used in clinical practice—i.e., 0.5 mg to 2 mg at a time, repeated every 2 to 4 minutes,” along with;
- a trained professional (although this person need not have a medical degree);
- who assesses the patient’s response to the prior dose before continuing with another;
- continuous EKG monitoring;
- continuous pulse oximetry monitoring;
- frequent blood pressure monitoring;
- the ability to give fluids and medication via IV to raise blood pressure; and
- use of the opioid fentanyl.

Ultimately, the negotiations reached an impasse with the parties unable to agree on a modified execution protocol.

XI. MOTION FOR NEW TRIAL

On May 13, 2016, Arthur moved for a new trial on his Eighth Amendment claim. He claimed that, three months after the trial, he discovered new evidence that compounded pentobarbital is available to the ADOC. He alleged that, after trial, the ADOC proffered Dr. Buffington as an expert for deposition in another case,¹⁵ on March 17, 2016. Arthur alleged that Dr. Buffington said that he

¹⁵ Grayson v Dunn, Case No. 2:12-cv-316 (M.D. Ala.), a consolidated action known as the “Midazolam Litigation.” This Court has explained that this “group of cases began as one lawsuit [filed in April 2012] when an Alabama death row inmate sued pursuant to 42 U.S.C. § 1983 to challenge the constitutionality of Alabama’s lethal injection protocol. . . . [The lawsuit] evolved

“personally knew compounding pharmacists who would be willing to compound pentobarbital for ADOC. . . . To obtain pentobarbital . . . defendants would ‘just have to ask’—which they did not do.” Arthur attached only excerpts from Dr. Buffington’s deposition testimony.

The ADOC opposed Arthur’s motion for a new trial, arguing that Arthur had misrepresented Dr. Buffington’s testimony. The ADOC submitted a more fulsome excerpt from Dr. Buffington’s March 17, 2016, deposition testimony, which reflects that Dr. Buffington actually testified that (1) he knows pharmacists who are capable of compounding pentobarbital and would do it for the ADOC, but that (2) he would have to check with them first before he could give their names to the ADOC:

- Q. And would you be willing to compound pentobarbital for the State of Alabama?
- A. I can identify numerous other individuals who would be probably more readily capable based on equipment and site and instrumentation to do that, but I know that there are multiple facilities that can do that.
- Q. Would they do it for the Alabama Department of Corrections?

along with the state’s new protocol, and now is known as the ‘Midazolam Litigation.’ Since 2012, cases brought by four other Alabama death row inmates have been consolidated into the Midazolam Litigation.” Brooks, 810 F.3d at 817. Petitioner Brooks himself also successfully intervened in the Midazolam Litigation. Id. Five additional inmates joined the suit after this court decided Brooks. Brooks was executed on January 21, 2016. A search of the ADOC prison records reveals that all 10 remaining plaintiffs are currently on Holman’s death row, although the State has set a December 8, 2016 execution date for one of the plaintiffs.

- A. We'd just have to ask.
- Q. Okay. Is it something – There's a lot of controversy around – The whole reason that we're here is because there's been a crackdown on certain drugs by the manufacturers.
- A. Well, I wouldn't call it a crackdown. I would say limited market availability.
- Q. Right. They won't sell it to Departments of Corrections for executions.
- A. That's correct.
- Q. Are all pharmacists sort of locked in in that regard and wouldn't sell it for purposes of an execution?
- A. No. I'm sure just like physicians where somebody may exercise a conscientious clause that do find that within pharmacy as well. As a matter of fact, it's been an open area of discussion across the country.
...
- Q. So you know a lot of pharmacists from going to conventions and being on the Board [of Trustees of the American Pharmacists Association] and teaching future pharmacists?
- A. That's correct.
- Q. And you don't think that it would be difficult for you to direct the Alabama Department of Corrections to a compounding pharmacist who would be willing to compound pentobarbital for them? . . .
- A. I think that's a resolvable question. . . . Level of difficulty, how many calls it would take, where that particular practice may reside. I know that they're there.
...
- Q. Have you at any of the conferences that you go to or any of these – You said that it's being discussed, the use of pharmaceuticals for lethal injection.

A. Absolutely.

Q. Okay. Have you ever had a discussion with colleagues at one of these meetings about pentobarbital for lethal injection?

A. Yes.

Q. All right. And when you talked to people, did any of them say I would do it?

A. Yes.

Q. And you know these people personally.

A. Yes.

Q. And would you be willing to provide their names to the Alabama Attorney General?

A. I would check with them first, but what you're asking is would – and I haven't been asked to do this at this juncture – would it be possible to identify appropriately-trained and well-staffed facilities to perform that function, and the answer would be yes.

Q. And assuming that they gave you permission, you would share their information with Mr. Govan or someone from the Alabama Attorney General's office?

A. Or whoever was asking me to do that, yes.

Q. If Ms. Hill, the general counsel for ADOC, asked you, you would assist her if you could?

A. Yes.

Subsequently, Dr. Buffington contacted these pharmacists but none were willing to compound pentobarbital for the ADOC or even allow Dr. Buffington to

reveal their names. To show this, the ADOC submitted an affidavit from Dr. Buffington, dated April 22, 2016. Dr. Buffington averred that, “[n]one of the 15 pharmacists that I contacted were able and willing to supply compounded pentobarbital for use in lethal injections to the ADOC. In addition, none of the pharmacists provided me permission to share their names and contact information with the ADOC or counsel for the Defendants.” (Emphasis added).

In his affidavit, Dr. Buffington further stated that he had testified at his earlier deposition that “the use of pharmaceuticals in lethal injections is an area of open discussion in the pharmacy community and that some colleagues I have encountered at professional events such as national conventions and conferences have commented that they would be willing to compound pentobarbital for use in lethal injections.” Dr. Buffington explained that, after that deposition, counsel for the defendants asked him to contact pharmacists and pharmacies “to inquire if any were willing to be contacted directly by the ADOC concerning the performance of this type of technical service.” To this end, he contacted 15 pharmacists, both within and outside of Alabama, and asked them “about their capability to compound sterile pentobarbital for intravenous [IV] use.”

Dr. Buffington concluded that he maintained his belief that “there are pharmacists in the United States that are able to compound pentobarbital for use in

lethal injections because other states have been reported to have obtained [it],” but he was not able to locate any that were willing and able to do so.

XII. DISTRICT COURT’S JULY 19, 2016 ORDER

The district court wrote that, “[d]istilled to its essence, Arthur’s as-applied claim is that his cardiovascular issues, combined with age and emotional makeup,¹⁶ create a constitutionally unacceptable risk of pain that will result in a violation of the Eighth Amendment if he is executed under the ADOC’s current protocol.” The district court applied, as it must, the same Baze/Glossip standard to Arthur’s as-applied challenge as it applied to his facial challenge.

As to Arthur’s health issues, the district court concluded Arthur’s Third Amended Complaint had failed to plead adequately or properly an “as-applied” claim and, alternatively, the district court questioned whether Arthur had presented sufficient evidence of any truly “unique health concerns” as to his execution. But in “an abundance of caution” the district court considered the merits of Arthur’s as-applied claim.

Because that “as-applied” claim was based on Dr. Strader’s declarations, the district court examined the methodology and foundation, or lack thereof, underlying Dr. Strader’s opinions. The district court ultimately concluded that Dr.

¹⁶ In his Third Amended Complaint, Arthur alleged that, because of his age and an “anxiety disorder,” there is a high likelihood that he will suffer a “paradoxical reaction” to midazolam. Arthur offered absolutely no proof on this subject, and the district court rightly considered it abandoned.

Strader’s opinion was speculative and unreliable under Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 113 S. Ct. 2786 (1993). We thus review the district court’s analysis of Dr. Strader’s opinion and then its reasons for excluding it.

The district court pointed out that these facts are undisputed: (1) Dr. Strader has never examined Arthur; (2) Arthur has repeatedly refused to submit to medical examination; and (3) Arthur has not been seen or examined by a cardiologist since 2009.

Turning first to the alternative-method prong in Arthur’s as-applied claim, the district court determined that “Arthur failed entirely” to establish the existence of a known and available alternative. To the extent Arthur relied on a one-drug protocol of pentobarbital or sodium thiopental, the district court found these options were “foreclosed” for the reasons given in its earlier order.¹⁷

The district court found that Dr. Strader’s opinion—that Arthur’s blood pressure would drop before sedation took effect—is “speculative and unreliable when extrapolated from a clinical dose of 2 to 5 mg, to a non-clinical, bolus dose of 500 mg.” The district court noted that there was no record evidence regarding

¹⁷ Arthur had filed a declaration from Dr. Kaye who opined that midazolam would not work during the execution, whether as a large or small dose. Even in a 500-mg dose, Dr. Kaye’s opinion is that midazolam is “incapable of holding an inmate in an unconscious state through the administration of the second and third lethal injection drugs.” Dr. Kaye admitted that midazolam is useful to induce unconsciousness and that he had used it for this purpose “many, many times,” but that it is not effective to keep a patient unconscious. Dr. Kaye opined that this is because of midazolam’s “ceiling effect,” such that it stops being effective above a certain dose.

whether a time “gap”—between midazolam’s hemodynamic effects and its sedative effects at a 500-mg dose—would occur at all or, if such a gap does occur, in what sequence it would occur. The district court then “ventur[ed] into [the] technical thicket” of available medical and scientific evidence, parsing it into four parts: (1) the hemodynamic and anesthetic effects of midazolam; (2) a clinical dose for sedation; (3) a clinical dose for anesthesia; and (4) a 500-mg bolus dose.

First, the district court noted that there was evidence that clinical doses of midazolam were known to produce a drop in blood pressure. Moreover, Dr. Strader characterized the drug as both a sedative and an anesthetic.

The district court noted Dr. Strader’s testimony that, with a clinical dose (2-5 mg) of midazolam, there was typically a gap of three to four minutes between the hemodynamic effects and the sedation effects of midazolam in clinical practice. But Dr. Strader acknowledged that none of the medical literature he relied on cautioned against using midazolam for patients with CAD and, indeed, Dr. Strader himself used midazolam routinely to sedate his cardiac patients during invasive cardiac procedures. Taking Dr. Strader’s claim that he, as a cardiologist, had performed approximately 3,500 cardiac procedures with midazolam as a sedative and only 24 of those patients experienced a heart attack after being sedated, the district court calculated that less than 1% of those 3,500 patients suffered a heart attack following the administration of a clinical dose of midazolam.

The district court also analyzed the evidence regarding use of midazolam for “anesthesia.” Dr. Strader had administered midazolam only for sedation purposes—which is a lighter level of sedation than full anesthesia. Dr. Strader “had no opinion as to what would be a clinical dose of midazolam sufficient to induce anesthesia.” However, the midazolam package insert explains that, even at small clinical dosage levels, midazolam can induce both sedation and anesthesia in as little as 2 minutes without narcotic premedication. In other words, if a 2-5 mg dose of midazolam produced sedation or anesthesia in two minutes, Arthur had failed to show how long it took a 500-mg dose to achieve anesthesia or that both the blood pressure drop and a heart attack would occur before a 500-mg dose achieved anesthesia.

The district court also pointed out that: (1) Dr. Strader had experience with small doses; (2) Dr. Strader declined to offer any opinion about the length of time it would take a 500-mg dose of midazolam to render a patient unconscious, reiterating many times that anesthesia was outside his field of expertise; and (3) nevertheless, Dr. Strader “remained of the opinion that the sedative effects of a 500-mg bolus dose would take longer than the hemodynamic effects.”

The district court rejected Dr. Strader’s opinion of the time gap as unreliable under Daubert. The district court stressed three reasons. First, Dr. Strader was incapable of saying how much time it would take a 500-mg dose to render a patient

unconscious and, therefore, “it is impossible for him to extrapolate a sequence of hemodynamic effect and sedation.” Second, any theoretical “gap” between hemodynamic and sedative effects is speculative because this gap is connected with much lower dosages. Third, Dr. Strader himself has never administered more than 20 mg of midazolam during his career. In short, Arthur had provided no “admissible medical expert opinion testimony to establish either the clinical dosage of midazolam necessary to induce anesthesia or the time-frame within which that would occur.” (Emphasis added).

Even as to whether Arthur has CAD in the first place, the district court determined that, because Arthur had not submitted to a medical examination since 2009, Dr. Strader’s opinion that Arthur suffered from CAD also “borders on being speculative and unreliable.” As the district court explained, “[b]oth must exist—the heart condition and the gap [in time between the hemodynamic effects and the sedation effects of midazolam] Dr. Strader expects—for there to be a realistic likelihood of the heart attack” before sedation takes effect. Based on the evidence as presented, the court determined that “it cannot be said that a heart attack is sure or very likely at all; one cannot make that connection from the medical evidence.” Therefore, Arthur had failed to raise a genuine dispute of material fact of a “sure or very likely risk of severe pain in the application of Alabama’s execution protocol

as applied to him,” and this failure “dooms his as-applied Eighth Amendment claim.”

As to Arthur’s motion for a new trial, the district court concluded that “Arthur’s ‘new evidence’ is nothing but generic testimony from Dr. Buffington describing passing conversations he has had with other pharmacists during national conventions concerning the use of pharmaceuticals, including pentobarbital, for lethal injection.” However, in his subsequent affidavit, Dr. Buffington actually admitted that he contacted 15 pharmacists and none were willing or able to provide compounded pentobarbital for use in lethal injections for the ADOC. Thus, Dr. Buffington’s earlier deposition testimony was not “likely to produce a new result” at trial, and the motion for a new trial was denied.

On July 19, 2016, the district court entered its final judgment in favor of the defendants. Arthur timely appealed the final judgment to our Court. We read the Final Judgment to encompass both the April 15, 2016 and July 19, 2016 orders. This Court ordered expedited briefing, which is now complete as of October 19, 2016. The Alabama Supreme Court has set an execution date of November 3, 2016.

XIII. RELEVANT LAW

With this lengthy procedural history in mind, we turn to Arthur's arguments on appeal. Before we do so, however, it is helpful to set forth the legal framework within which we must resolve Arthur's claims.

A. Glossip and Baze

The Eighth Amendment prohibits "cruel and unusual punishments." U.S. Const. amend. VIII. The Supreme Court has repeatedly held the death penalty to be constitutional. *See Glossip*, 135 S. Ct. at 2739. "[I]t necessarily follows that there must be a constitutional means of carrying it out." *Id.* at 2732-33 (alterations adopted) (quoting *Baze*, 553 U.S. at 47, 128 S. Ct. at 1529) (internal quotation marks omitted). Further, the Supreme Court has held that "some risk of pain is inherent in any method of execution," and that the Constitution does not require "the avoidance of all risk of pain." *Id.* at 2733 (quoting *Baze*, 553 U.S. at 47, 128 S. Ct. at 1529).

The Supreme Court has required prisoners seeking to challenge a state's method of execution to meet a "heavy burden." *Baze*, 553 U.S. at 53, 128 S. Ct. at 1533 (internal quotation marks omitted). Thus, in order to succeed on an Eighth Amendment method-of-execution claim, the Supreme Court has instructed that prisoners must demonstrate that the challenged method of execution presents a risk that is "*sure or very likely* to cause serious illness and needless suffering, and give

rise to sufficiently *imminent* dangers.” Glossip, 135 S. Ct. at 2737 (quoting Baze, 553 U.S. at 50, 128 S. Ct. at 1531) (internal quotation marks omitted). “To prevail on such a claim, there must be a substantial risk of serious harm, an objectively intolerable risk of harm.” Id. (internal quotation marks omitted).

This requires more than merely showing “a slightly or marginally safer alternative.” Id. (quoting Baze, 553 U.S. at 51, 128 S. Ct. at 1531) (internal quotation marks omitted). Instead, prisoners are required to “identify an alternative that is feasible, readily implemented, and in fact significantly reduces a substantial risk of severe pain.” Id. (citing Baze, 553 U.S. at 52, 128 S. Ct. at 1532) (internal quotation marks and alteration omitted). In other words, the prisoner must demonstrate that the risk of severe pain is substantial “when compared to the known and available alternatives.” Id. (emphasis added) (citing Baze, 553 U.S. at 61, 128 S. Ct. at 1537). Thus, we must view the two “prongs” of the Baze/Glossip test in concert—it is not enough to ask merely if the risk of severe pain is substantial. Instead, the risk of severe pain must be substantial and objectively intolerable in comparison to an alternative method that is feasible and readily implemented. Id. And that alternative method must “significantly reduce” a substantial risk of severe pain. Id. “As the Supreme Court made abundantly clear in Glossip itself, the burden rests with the claimant to ‘plead and prove’ both prongs of the test.” Brooks, 810 F.3d at 819.

Critical to this case, Glossip involved the same three-drug protocol that the ADOC will use in Arthur's execution. 135 S. Ct. at 2734-35. In Glossip, the Supreme Court concluded, inter alia, that the petitioner had not "proved that any risk posed by midazolam is substantial when compared to known and available alternative methods of execution." Id. at 2737-38. The Supreme Court later repeated that the petitioners had not satisfied their burden of establishing that any risk of harm was substantial when compared to a known and available alternative method of execution. Id. at 2738-39.

B. Feasible, Readily Implemented, and Significantly Safer

While the Supreme Court in Glossip did not explicitly define "feasible," "readily implemented," or "known and available," it upheld a factual finding that both sodium thiopental and pentobarbital were unavailable to Oklahoma by 2014 for use in executions where the state was unable to procure those drugs due to supplier problems. Glossip, 135 S. Ct. at 2733-34, 2738.

And earlier in 2016, in another Alabama-execution case, this Court rejected an inmate's claim that the exact same alternatives that Arthur proposes here—namely, single-drug protocols of either pentobarbital¹⁸ or sodium thiopental—were

¹⁸ Although it is not entirely clear, it appears that the petitioner in Brooks was arguing that compounded (not commercially manufactured) pentobarbital was a known and available alternative method of execution. See Brooks, 810 F.3d at 819 & n.2. Arthur's allegation that Alabama's supply of commercially manufactured pentobarbital expired on or around November 2013 also supports this presumption.

alternatives “available to the ADOC that significantly reduce the risk of an unconstitutional level of pain.” Brooks, 810 F.3d at 819.¹⁹ This Court concluded that (1) “the fact that the drug [pentobarbital] was available in those states at some point over the past two years does not, without more, make it likely that it is available to Alabama now”; and (2) Brooks had not shown that “there is now a source for pentobarbital that would sell it to the ADOC for use in executions.” Id. at 819-20.

In that same Alabama-execution case, this Court determined that petitioner Brooks had not shown that sodium thiopental was available. Id. at 820-21. Brooks had relied on certain news articles that other states had been able to obtain the drug, but these sources actually undermined his claim that the ADOC “could readily import sodium thiopental.” Id. As to Brooks’s request for a single-drug midazolam protocol, this Court noted that Brooks had conceded that a midazolam-only protocol had never been used in an execution, and his concession “deeply undercut his claim that it is a known, readily implementable, and materially safer lethal injection alternative.” Id. at 821-22. And given the dearth of evidence presented on the safety of this untested alternative, Brooks was unlikely to establish that it was “materially safer than a protocol that is identical to one

¹⁹ The Brooks Court also rejected a midazolam-only alternative. 810 F.3d at 821-22.

approved by the Supreme Court.” Id. at 822 (citing Glossip, 135 S. Ct. at 2734-35).

Viewing these precedents together, we conclude that Glossip’s “known and available” alternative test requires that a petitioner must prove that (1) the State actually has access to the alternative; (2) the State is able to carry out the alternative method of execution relatively easily and reasonably quickly; and (3) the requested alternative would “in fact significantly reduce[] a substantial risk of severe pain” relative to the State’s intended method of execution. Glossip, 135 S. Ct. at 2737; Brooks, 810 F.3d at 819-23.

With this legal framework in mind, we now address each of Arthur’s arguments on appeal in turn.

XIV. PENTOBARBITAL IS NOT AVAILABLE TO ADOC

Arthur claims that the district court erred in finding that he had not carried his burden to show that pentobarbital is a feasible and readily implemented alternative method of execution available to the ADOC.²⁰

The standard of review and burden of persuasion are critical to the resolution of this case. The Supreme Court has made unequivocally clear that, in method-of-execution challenges, (1) the district court’s factual findings are reviewed under a deferential clear error standard, and (2) the petitioner-inmate bears the burden of

²⁰ In this appeal, Arthur has not resurrected his claim regarding a one-drug protocol of sodium thiopental as a feasible alternative method of execution. Accordingly, we will not address it.

persuasion. Glossip, 135 S. Ct. at 2739. This includes the requirement that a plaintiff inmate must “plead and prove a known and available alternative.” Id. at 2738, 2739.

In Glossip, the Supreme Court considered a challenge to the identical lethal injection protocol at issue in this case—midazolam, followed by a bromide-based paralytic, followed by potassium chloride. Id. at 2734-35. The dosage of midazolam is the same here as in Glossip: 500 milligrams. Id. at 2740. The Glossip plaintiffs brought a § 1983 action alleging that this protocol, particularly midazolam, created an unacceptable risk of severe pain and sought a preliminary injunction. Id. at 2731.

The Supreme Court in Glossip affirmed the district court’s denial of relief for two reasons. First, it held that the plaintiffs had not identified a “known and available alternative method of execution that entails a lesser risk of pain, a requirement of all Eighth Amendment method-of-execution claims.” Id. (emphasis added). Second, it determined that the district court did not clearly err in finding that the prisoners failed to establish that Oklahoma’s use of a large dose of midazolam in its execution protocol entailed “a substantial risk of severe pain.” Id. We follow the Supreme Court’s lead and address the requirements of the Baze/Glossip test in that order: (1) proof of known and available alternatives; (2) proof that 500 mg of midazolam will cause a substantial risk of severe pain and

that known and available alternatives will “significantly reduce” that substantial risk of severe pain.

Here, the district court’s factual finding that pentobarbital was not available to the ADOC for use in executions was not clearly erroneous.

On the contrary, substantial record evidence supports that finding, including (1) Arthur’s own concession that the ADOC’s supply of commercially manufactured pentobarbital expired in November 2013; (2) Dr. Zentner’s inability to point to any source willing to compound pentobarbital for the ADOC; and (3) ADOC lawyer Hill’s testimony that, despite contacting 29 potential sources for compounded pentobarbital (including the departments of corrections of four states and all of the compounding pharmacies on Dr. Zentner’s list), she was unable to procure any compounded pentobarbital for the ADOC’s use in executions.

Arthur would have us hold that if a drug is capable of being made and/or in use by other entities, then it is “available” to the ADOC. Arthur stresses that:

(1) pharmacies throughout Alabama are theoretically capable of compounding the drug; (2) the active ingredient for compounded pentobarbital (pentobarbital sodium) is generally available for sale in the United States; and (3) four other

states were able to procure and use compounded pentobarbital to carry out executions in 2015.²¹

We expressly hold that the fact that other states in the past have procured a compounded drug and pharmacies in Alabama have the skills to compound the drug does not make it available to the ADOC for use in lethal injections in executions. The evidentiary burden on Arthur is to show that “there is now a source for pentobarbital that would sell it to the ADOC for use in executions.” Brooks, 810 F.3d at 820 (emphases added).

To adopt Arthur’s definition of “feasible” and “readily implemented” would cut the Supreme Court’s directives in Baze and Glossip off at the knees. As this Court explained in Brooks, a petitioner must show that “there is now a source for pentobarbital that would sell it to the ADOC for use in executions.” 810 F.3d at

²¹ Arthur’s claim is only about “compounded pentobarbital,” and he makes no claim that the ADOC has access to commercially manufactured pentobarbital. Nor could he. In Glossip, the Supreme Court observed that Oklahoma in December 2010 became the first state to execute an inmate using pentobarbital, and states “gradually shifted to pentobarbital as their supplies of sodium thiopental ran out.” 135 S. Ct. at 2733. Pentobarbital was used in all 43 executions carried out in 2012. Id. As the Supreme Court noted, “[b]efore long, however, pentobarbital also became unavailable” because “[a]nti-death-penalty advocates lobbied the Danish manufacturer of the drug to stop selling it for use in executions.” Id. “That manufacturer opposed the death penalty and took steps to block the shipment of pentobarbital for use in executions in the United States.” Id. The Supreme Court added, “Oklahoma eventually became unable to acquire the drug through any means.” Id.

As Arthur points out in his reply brief, more than a dozen inmates (to date, seven in Texas, seven in Georgia, and one in Missouri) have been executed in 2016 using a single-drug pentobarbital protocol. See Execution List 2016, DEATH PENALTY INFORMATION CENTER, <http://www.deathpenaltyinfo.org/execution-list-2016>. Given Glossip, these states presumably used compounded pentobarbital in these executions.

820 (emphases added). This Arthur patently did not do. Arthur’s own expert witness, Dr. Zentner, could not even identify any pharmacies that had actually compounded an injectable solution of compounded pentobarbital for executions or were willing to do so for the ADOC. And when ADOC attorney Hill actually asked the pharmacies identified by Dr. Zentner if they would be willing to compound pentobarbital for the ADOC, they all refused. What’s more, Hill contacted no less than 29 potential sources for compounded pentobarbital—including numerous pharmacies and four states’ departments of corrections. All of these efforts were unsuccessful.

And while four states had recently used compounded pentobarbital in their own execution procedures, the evidence demonstrated that none were willing to give the drug to the ADOC or name their source. As we have explained, “the fact that the drug was available in those states at some point . . . does not, without more, make it likely that it is available to Alabama now.” Brooks, 810 F.3d at 819. On this evidence, the district court did not clearly err in determining that Arthur failed to carry his burden to show compounded pentobarbital is a known and available alternative to the ADOC. An alternative drug that its manufacturer or compounding pharmacies refuse to supply for lethal injection “is no drug at all for Baze purposes.” Chavez v. Florida SP Warden, 742 F.3d 1267, 1275 (11th Cir. 2014) (Carnes, C.J., concurring).

Arthur also argues that the ADOC did not make a “good faith effort” to obtain pentobarbital. Glossip did not impose such a requirement on the ADOC. In Glossip, the Supreme Court upheld the district court’s factual finding that the proposed alternative drugs were not “available.” See Glossip, 135 S. Ct. at 2738. It continued, “[o]n the contrary, the record shows that Oklahoma has been unable to procure those drugs despite a good-faith effort to do so.” Id. Nothing in Glossip changed the fact that it is not the state’s burden to plead and prove “that it cannot acquire the drug.” Brooks, 810 F.3d at 820.²² The State need not make any showing because it is Arthur’s burden, not the State’s, to plead and prove both a known and available alternative method of execution and that such alternative method significantly reduces a substantial risk of severe pain. Glossip, 135 S. Ct. at 2737, 2739.

As an alternative, independent reason for affirmance, we also conclude that even if Glossip somehow imposes a good-faith effort on the State, the ADOC made such an effort here by contacting 29 potential sources for the drug, including four other departments of correction and multiple compounding pharmacies.

²² In support of his argument, Arthur points us to language from Baze that a state’s refusal to change its method of execution “in the face of these documented advantages, [and] without a legitimate penological justification for adhering to its current method of execution” can violate the Eighth Amendment. Baze, 553 U.S. at 52, 128 S. Ct. at 1532. But this language would apply only where the death-sentenced petitioner has already met his burden of proof and established an available alternative method of execution that “significantly reduce[s] a substantial risk of severe pain,” which Arthur did not do here. See Glossip, 135 S. Ct. at 2737.

Under these record facts, we cannot fault at all the district court’s finding that the procurement of compounded pentobarbital was not “feasible and readily implemented as an execution drug in Alabama, nor [was] it readily available to the ADOC.”

We also reject Arthur’s argument that the district court’s ruling was a “nullification” of his Eighth Amendment rights. The district court even waited for Glossip to be decided and then followed Glossip’s requirement that the inmate must show that the risk of severe pain from the chosen method is substantial “when compared to the known and available alternatives.” Glossip, 135 S. Ct. at 2737 (emphasis added). As we discussed above, Arthur did not show that his alternative was “known and available,” much less (as discussed more later) that his suggested alternative “significantly reduce[d]” a substantial risk of severe pain. See id.

As for the alleged risk of severe pain in Alabama’s current protocol, “it is difficult to regard a practice as ‘objectively intolerable’ when it is in fact widely tolerated.” Baze, 553 U.S. at 53, 128 S. Ct. at 1532. Both this Court and the Supreme Court have upheld the midazolam-based execution protocol that Arthur challenges here. Glossip, 135 S. Ct. at 2739-40 (noting that “numerous courts have concluded that the use of midazolam as the first drug in a three-drug protocol is likely to render an inmate insensate to pain that might result from administration of the paralytic agent and potassium chloride.”); Brooks, 810 F.3d at 818, 819

(concluding that petitioner Brooks had not established a substantial likelihood that Alabama’s lethal injection protocol creates a “demonstrated risk of severe pain,” and noting that this was “an especially difficult burden” given the Supreme Court’s approval of the exact same protocol in Glossip); Chavez, 742 F.3d at 1269 (affirming the dismissal of Eighth Amendment challenge to Florida’s nearly identical lethal injection protocol that uses 500 mg of midazolam as the first drug).

Indeed, in Glossip, the Supreme Court emphasized that midazolam has been repeatedly and successfully used without problems as the first drug in the three-drug lethal injection protocol. 135 S. Ct. at 2734, 2740-46. The Supreme Court observed that, in October 2013, Florida became the first state to substitute midazolam for pentobarbital as part of a three-drug protocol. Id. at 2734. The Supreme Court stressed that, at the time that it decided Glossip in June 2015, Florida had conducted 11 executions using this lethal injection protocol (with midazolam as the first drug). Id. (citing Brief for State of Florida as *Amicus Curiae* 2-3 and Chavez, 742 F.3d at 1269). The Glossip Court noted that 12 executions total (including the 11 from Florida and one from Oklahoma) had been conducted using this three-drug protocol “without any significant problems.” Id. at 2734, 2746. Since then, Florida has executed two additional inmates under that protocol. See Execution List: 1976 – present, FLA. DEP’T OF CORR., <http://www.dc.state.fl.us/oth/deathrow/execlist.html> (providing the list of executed

Florida inmates); Execution by Lethal Injection Procedures, FLA. DEP'T OF CORR. (Jan. 9, 2015), http://www.dc.state.fl.us/oth/deathrow/lethal-injection-procedures-as-of_01-09-15.pdf (describing Florida's current lethal injection protocol).

Arthur has failed to show not only that compounded pentobarbital is an available alternative to the ADOC but also that ADOC's protocol creates a substantial risk of severe pain when compared to available alternatives. See Glossip, 135 S. Ct. at 2737.

For all of these reasons, we affirm the district court's determination that the ADOC was entitled to judgment on Arthur's facial Eighth Amendment challenge.

XV. DISCOVERY CLAIM

Before leaving pentobarbital, we address one more claim Arthur raises about that drug. Arthur argues that the district court abused its discretion in limiting his discovery regarding primarily the ADOC's knowledge of and efforts to obtain compounded pentobarbital as an alternative method of execution. We review the district court's discovery decisions for abuse of discretion. Burger King Corp. v. Weaver, 169 F.3d 1310, 1315 (11th Cir. 1999); Sanderlin v. Seminole Tribe of Fla., 243 F.3d 1282, 1285 (11th Cir. 2001) (explaining that this Court reviews a district court's denial of a motion to compel discovery for abuse of discretion). As we have explained:

A district court has wide discretion in discovery matters and our review is “accordingly deferential.” A court abuses its discretion if it makes a “clear error of judgment” or applies an incorrect legal standard. Moreover, a district court's denial of additional discovery must result in substantial harm to a party's case in order to establish an abuse of discretion.

Bradley v. King, 556 F.3d 1225, 1229 (11th Cir. 2009) (citations omitted).

Here, the district court did not disallow all discovery about pentobarbital but did restrict the scope of some additional discovery. For example, the district court allowed additional discovery as to the “availability or unavailability of pentobarbital or compounded pentobarbital” to the ADOC, including a general description of the State's “efforts to obtain pentobarbital, including whether the pentobarbital was obtained and, if not, the reasons why it could not be obtained.” This information was precisely what Arthur needed to prove his Eighth Amendment claim.

Accordingly, during ADOC lawyer Hill's November 2015 deposition and again at the January 2016 trial, Arthur questioned Hill about the ADOC's attempts to obtain compounded pentobarbital. According to Hill, although she repeatedly attempted to obtain compounded pentobarbital from various sources, including the 18 pharmacies identified by Arthur's expert witness, all of her attempts were unsuccessful.

Arthur complains that the district court did not require the ADOC to disclose the names of the drug suppliers who talked to the ADOC about pentobarbital during the ADOC's efforts to procure the drug for executions. Given the controversial nature of the death penalty, it is not surprising that parties who might supply these drugs are reluctant to have their names disclosed.

Considering the district court's broad discretion, we cannot say its decision about discovery resulted in "substantial harm" to Arthur's case. See Bradley, 556 F.3d at 1229.

On appeal, Arthur argues that "if discovery revealed" that ADOC did not pursue certain sources, or "if discovery revealed" that negotiations broke down over prices, it would impact his claim. He worries that, without access to this discovery, the ADOC "could have presented self-serving representations." All of this is pure speculation. Arthur never deposed or questioned even the prospective suppliers that his own expert identified about whether they would provide compounded pentobarbital to the ADOC. Arthur has given us no reason to think that the ADOC lied or presented false evidence either during discovery or at trial and, indeed, the district court noted that the ADOC had claimed to produce everything of relevance. Under these circumstances, we cannot say that the district court abused its discretion in denying the discovery sought by Arthur.

XVI. AS-APPLIED EIGHTH AMENDMENT CLAIM

Because Arthur’s facial Eighth Amendment claim so readily fails, Arthur turns his focus in this appeal to his “as-applied” Eighth Amendment claim. We explain why the district court did not err in granting summary judgment on Arthur’s “as-applied” claim.²³

The first hurdle for Arthur is that the pleading burden and standard of proof set forth in Baze and Glossip apply to both facial and as-applied Eighth Amendment method-of-execution claims. See Gissendaner v. Comm’r, Ga. Dep’t of Corr., 803 F.3d 565, 569 (11th Cir.), cert. denied sub nom. Gissendaner v. Bryson, 136 S. Ct. 26 (2015) (“[T]here is no logical reason why there should be a readily available alternative requirement in facial challenges to lethal injection protocols but not to as-applied challenges to them.”); see id. at 568-69 (holding that a Georgia death-row inmate had failed to adequately allege that there was a substantial risk to her personally because the state had improperly stored the particular drug to be used at her execution).

Thus, Arthur had the burden to present evidence sufficient to create a genuine issue of disputed material fact as to whether midazolam creates a

²³ We review a district court’s ruling on summary judgment de novo. Mathews v. Crosby, 480 F.3d 1265, 1268 (11th Cir. 2007). Summary judgment is appropriate only when the evidence before the court demonstrates that “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). The evidence must be viewed in the light most favorable to Arthur as the nonmoving party. Mathews, 480 F.3d at 1269.

substantial risk of severe pain as applied to him uniquely “when compared to the known and available alternatives” for his execution as applied to him. Glossip, 135 S. Ct. at 2737; Gissendaner, 803 F.3d at 568-69. This he did not do. We address Arthur’s proposed alternatives and then Arthur’s allegation that midazolam will affect him differently and uniquely from other inmates by causing him to experience the pain of a heart attack a few minutes before being rendered unconscious.

A. As-Applied Alternatives

As to the alternative-method requirement for his as-applied claim, Arthur has not established, as explained above, that a one-drug protocol consisting of compounded pentobarbital (or, for that matter, a one-drug protocol consisting of sodium thiopental) is a “known and available” alternative to the ADOC at this time for any inmate, much less as to Arthur on November 3, 2016. That leaves only his proposed alternative of material and extensive modifications to Alabama’s current protocol, which Arthur suggests will reduce “to some extent” but not eliminate the risk of his having a heart attack.²⁴

²⁴ Arthur failed to specifically plead, or request, a modification of the midazolam protocol in his Second or Third Amended Complaints. The district court would have been well within its discretion to dismiss any such putative claim. See Glossip, 135 S. Ct. at 2739 (conferring on petitioners the burden to plead and prove a known and available alternative). But since the district court addressed the claim on the merits, we do too.

Arthur's proposed modified protocol has many components, starting with the administration of midazolam gradually. In his fourth declaration, Dr. Strader opined that administration of midazolam at a rate "closer to that used in clinical practice—*i.e.*, 0.5 mg to 2 mg at a time, repeated every two to four minutes" would reduce the risk of a precipitous drop in blood pressure. Dr. Strader's fourth declaration does not state how long these small dosages should be administered to the inmate, what the intended effect would be, how to gauge when that intended effect would be reached, at what point unconsciousness would be reached in gradual administration, or at what point the second and third drugs should be administered. Arthur concedes, as he must, that a gradual administration of midazolam has not previously ever been used in a lethal-injection execution, which alone suggests Arthur's difficulty in proving that a gradual administration is a significantly safer alternative. See Brooks, 810 F.3d at 821-22 (concluding that the petitioner had not met his burden of showing that a midazolam-only protocol was a "feasible, readily implementable, and significantly safer" method of execution where such a protocol had never been used).

Arthur's proposed modified protocol also includes extensive monitoring with multiple pieces of sophisticated medical equipment, the use of additional "medication" and IV fluids, and the attendance of a "trained professional."

Arthur's March 8, 2016, letter to the ADOC's attorneys requested that a "trained

professional” use an electroencephalogram, an electrocardiogram (“EKG”), and a bispectral index monitor “and/or other appropriate methods” to monitor Arthur throughout the execution. Arthur also requested the availability of “other medication to prevent cardiac complications.”

Dr. Strader echoed that, “[i]n the clinical setting, continuous EKG monitoring, continuous pulse oximetry monitoring . . . and frequent blood pressure monitoring (every one to two minutes) are common.” As to the additional medication and fluids, Dr. Strader stated that, “[i]n clinical practice,” if a patient is in danger of a heart attack, “pressors” or “agents to increase blood pressure are typically given, such as intravenous phenylephrine (Neosynephrine) or intravenous dopamine.” In addition, “in clinical practice, the opioid fentanyl is often administered with midazolam, and the drug romazicon may be used to reverse midazolam’s effects.”

Again, Arthur’s proposed modified protocol is light on specifics. Other than Dr. Strader’s assertion that the “trained professional” need not hold a medical degree, Arthur does not posit what training, or how much training, this professional must have, who this person might be or where the ADOC might find them to participate in an execution within a prison setting. Arthur does not explain how the addition of five separate monitoring machines and/or procedures would be incorporated into the ADOC’s current protocol. Arthur does not state what sort of

anomaly in that monitoring would require action by the trained professional, nor what those actions would include.

While Dr. Strader stated that “changes in EKG monitoring” indicating the onset of a heart attack could lead to the administration of pressors, he does not state what sort of “changes” would require this, the amount of pressors to be given, or in what order in relation to the rest of the lethal injection protocol they should be administered. Arthur does not suggest at what dosage the trained professional would administer the opioid fentanyl or the drug romazicon to the inmate or under what factual circumstances those drugs should be administered and for how long. Arthur also has presented no evidence that suppliers would provide these medicines, such as fentanyl, to the ADOC for use in executions.

More importantly, though, is that Arthur admitted in a letter to the ADOC’s counsel that his proposed modified protocol “may reduce to some extent the likelihood of Mr. Arthur suffering the pain of a heart attack during administration of the protocol, although it would not ameliorate those risks entirely.” (emphases added). Glossip cautions us that prisoners cannot successfully challenge a method of execution ““merely by showing a slightly or marginally safer alternative.”” 135 S. Ct. at 2737 (quoting Baze, 553 U.S. at 51, 128 S. Ct. at 1531). But a “marginally safer” alternative is, at best, all that Arthur has suggested. It is not enough to meet his burden under Glossip and Baze. See Baze, 553 U.S. at 56-57,

128 S. Ct. at 1534-35 (rejecting the petitioners’ proposed alternative method of execution where there was no evidence demonstrating that it was an “equally effective manner” of death than the three-drug protocol used in Kentucky); Brooks, 810 F.3d at 821-22 (holding that, given the lack of available evidence regarding a midazolam-only lethal injection protocol, Brooks was unlikely to establish “that a heretofore untested lethal injection protocol . . . is materially safer than a protocol that is identical to one approved by the Supreme Court [in Glossip.]”).

Alternatively, we agree with the district court that Arthur has not introduced any evidence of sufficient specifics to make his proposed modified protocol a viable and feasible alternative method of execution that the ADOC could “readily implement” for his execution on November 3, 2016. Arthur argues that he could not provide more specifics because doctors are prohibited from participating in lethal injections.²⁵ This seems contradicted by Dr. Strader’s testimony, which outlines the broad components of Arthur’s proposal, albeit without many of the specifics necessary to implement it.

In any event, we need not rely on the lack of specifics because Arthur has not shown that his proposed modified protocol will “significantly reduce” any

²⁵ Rule 9.7.3 of the American Medical Association’s (“AMA”) Code of Medical Ethics provides that “a physician must not participate in a legally authorized execution,” with “participation” defined as, inter alia, the “[r]endering of technical advice regarding execution.” AMA Code of Medical Ethics Rule 9.7.3 (2016).

“substantial risk of severe pain” or is constitutionally required²⁶ See Glossip, 135 S. Ct. at 2737. If anything, the vastly reduced levels of midazolam seem more complicated and designed to prolong the execution proceeding itself, which may create more, not less, risk of error.

Thus, the district court did not err in concluding that there was no genuine dispute of material fact as to whether Arthur could meet his burden of proof to show that his proposed material and extensive changes to the midazolam protocol would be a known and available alternative that would “significantly reduce a substantial risk of severe pain.” Without a proper showing on this alternative-method prong, Arthur’s as-applied Eighth Amendment claim is without merit and this alone warranted the district court’s grant of summary judgment. However, because the district court went on to address the substantial-risk-of-severe-pain

²⁶ Ironically, Dr. Kaye, Arthur’s other expert, opined that midazolam was “fundamental[ly] unsuitab[le] . . . as the first drug in the ADOC protocol” because it was “incapable” of maintaining unconsciousness through administration of the second and third drug. The district court found that this evidence was “wholly inconsistent” with Arthur’s latest position that gradual administration of small doses of midazolam could be a feasible, readily available, and safer alternative. For this reason, the district court found that “Arthur cannot credibly propose the use of midazolam in any argument for a remedy [*i.e.*, an alternative method], based upon his own evidence.” The district court did not see how Arthur can argue that midazolam in small doses can be used to painlessly render him unconscious and, in the same breath, say that the drug ought not to be used at all in any dose because it will not render him insensate during the administration of the second and third drugs. See Brooks, 810 F.3d at 822 (noting a similar “fundamental tension” in the petitioner’s argument that a midazolam-only protocol was a known and available alternative).

As an independent and alternative ground, this testimony by Arthur’s own expert witness also demonstrates that the district court did not clearly err in finding that Arthur did not meet his burden to show a known, available, and substantially safer alternative, as he was required to do in his as-applied claim. Glossip, 135 S. Ct. at 2737; Gissendaner, 803 F.3d at 568-69.

prong of the Baze/Glossip test, and Arthur's arguments on appeal focus on this portion of the district court's order, we too will consider that issue.

B. As-Applied Substantial Risk of Severe Pain

To be clear, because, in his as-applied claim, Arthur has not carried his burden to show a known and available alternative, we need not reach his claim that the ADOC's use of 500 mg of midazolam will cause him uniquely to suffer a heart attack a few minutes before full sedation. But we do so because it is so apparent that Arthur's as-applied claim fails on that separate prong too. Indeed, Arthur failed to present any admissible evidence that 500 mg of midazolam, as applied to him, will cause a heart attack before full sedation. Dr. Strader is Arthur's only expert witness on this as-applied issue. And the district court excluded this time-gap part of his opinion testimony under Daubert.

We review a district court's decision to exclude expert testimony under Daubert for an abuse of discretion. Gen. Elec. Co. v. Joiner, 522 U.S. 136, 142-43, 118 S. Ct. 512, 517 (1997). Under this standard, this Court defers to the district court's ruling unless it is manifestly erroneous. Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd., 326 F.3d 1333, 1340 (11th Cir. 2003). This deferential standard is not relaxed even though a Daubert ruling may be outcome determinative. Kilpatrick v. Breg, Inc., 613 F.3d 1329, 1334-35 (11th Cir. 2010). In addition, the

party offering the expert has the burden of proving the admissibility of the testimony by a preponderance of the evidence. Id.

Federal Rule of Evidence 702 governs the admission of expert testimony in federal court and provides that:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

Applying these principles, this Court has held that, to be admissible, three requirements must be met:

First, the expert must be qualified to testify competently regarding the matter he or she intends to address. Second, the methodology used must be reliable as determined by a Daubert inquiry. Third, the testimony must assist the trier of fact through the application of expertise to understand the evidence or determine a fact in issue.

Kilpatrick, 613 F.3d at 1335.

Dr. Strader is a qualified cardiologist and competent to testify as such. But Dr. Strader's opinion testimony hinged on the existence of a measurable time gap between the hemodynamic and sedative effects of a 500-mg dose of midazolam on patients with CAD. The district court's Daubert exclusion was based on Dr. Strader's methodology being speculative and unreliable.

Dr. Strader's opinion was based on at least five underlying ingredients in his methodology mix: (1) Arthur actually has, or is "highly likely" to have, a clinically significant case of CAD; (2) a 500-mg dose of midazolam will result in a precipitous and dangerous blood pressure drop in Arthur; (3) that blood pressure drop will in turn trigger a heart attack in Arthur; (4) the sedative effects of a 500-mg dose of midazolam will take longer than both this hemodynamic effect and the heart attack to occur; and (5) due to this time gap, Arthur is "likely" to feel the pain of the heart attack for a few minutes before he is rendered fully unconscious. The district court, in effect, concluded that each of these steps in Dr. Strader's methodology were speculative and not reliable. Without even one of these steps, Dr. Strader's opinion folds like a house of cards. We explain why the district court did not abuse its discretion in concluding that Dr. Strader's methodology was unreliable and in excluding his time-gap opinion.

First, we address Dr. Strader's medical opinion that Arthur "likely" has CAD. It is undisputed that (1) no doctor has ever actually diagnosed Arthur with

CAD; and (2) Dr. Strader himself has never examined Arthur, talked to Arthur's treating physicians, or done anything more than review the medical records given to him. Further, Arthur's medical records nowhere state that Arthur has ever had a heart attack, has ever been diagnosed with a heart attack, or has ever had a procedure performed to assess whether Arthur has any blockage in his arteries or at what level.

The most the medical records say is that Arthur had "abnormal" EKGs in 1999 and 2009, twice had atrial fibrillation (during his 2004 abdominal surgery and his 2009 EKG), and had a normal echocardiogram in 2004. There is no description of what was "abnormal" in the EKGs. Arthur did visit the prison clinic on two occasions complaining of being short of breath, dizzy, sweaty, and/or having chest pains. But these two visits (in 1999 and 2009) were ten years apart, and Arthur has never requested any medical treatment from a cardiologist.

In fact, Dr. Strader relies primarily on Arthur's age, hypertension, atrial fibrillation, and "symptoms of recurrent chest pain" as merely "risk factors" for coronary heart disease, as opposed to the missing diagnosis of coronary heart disease. The State argues that it was not an abuse of discretion for the district court to find Dr. Strader's opinion—that it was "highly likely" that Arthur suffers from CAD—"borders on being speculative and unreliable." The State asserts that a

“likelihood” is not evidence that Arthur actually suffers from an obstructive coronary heart condition.

We need not resolve the CAD debate because the district court did not abuse its discretion in concluding Dr. Strader’s time-gap theory was speculative and not reliable. We will assume that Arthur likely has CAD and examine the next steps in Dr. Strader’s methodology. Dr. Strader offered the opinion that “[w]hen midazolam is administered in doses larger than those administered in clinical practice, including the 500 mg dose directed by the ADOC protocol, it is highly likely that” the drug will cause a rapid drop in blood pressure and that this drop will in turn “immediate[ly]” cause a heart attack in Arthur. Dr. Strader’s basis for his opinion about what will happen upon administration of a 500-mg bolus dose of midazolam is based solely on his clinical experience with dosages of 2-5 mg of midazolam that he has used to sedate his own cardiac patients into a deep, but arousable, sleep for invasive cardiac procedures. Dr. Strader admitted that he had no experience with a 500-mg dose of midazolam, or any dose larger than 20 mg. See Glossip, 135 S. Ct. at 2742 (stating that “[t]he effect of a small dose of midazolam has minimal probative value about the effect of a 500-milligram dose.”).

In his deposition, Dr. Strader conceded that the medical literature that he relied upon did not address such large doses of midazolam nor did it expressly

state that midazolam should not be used on patients with CAD. Indeed, Dr. Strader admitted that he uses midazolam “in patients with coronary disease all the time in routine clinical practice.” Dr. Strader testified that he has only observed about 24 patients (some his cardiac patients and some not) who were sedated with midazolam suffer a heart attack. If compared to the approximately 3,500 invasive cardiac procedures that Dr. Strader has performed, that works out to less than 1% of all his cardiac patients.

Nonetheless, we will assume that Arthur likely has CAD and 500 mg of midazolam will cause Arthur “likely” to have a drop in blood pressure and then suffer a heart attack. The most critical, but most speculative, part of Dr. Strader’s opinion is his time-gap theory. According to Dr. Strader’s best guess, a 500-mg dose of midazolam could cause sedation in three to five minutes, but the heart attack will occur “immediately” after the drop in blood pressure, which he testified happens in one to two minutes with small clinical doses of midazolam. Dr. Strader’s time gap is imprecise and even, under one reading of his own testimony, it may take two minutes for the blood pressure to drop but the sedation may occur in three minutes, leaving one minute for the heart attack to start before sedation. The district court did not abuse its discretion in concluding this time-gap part of Dr. Strader’s testimony was speculative and unreliable.

Here, Dr. Strader admitted he had used midazolam only for sedation, an entirely different goal than what the ADOC uses it for: anesthesia. And sedation, as Dr. Kaye testified, is different from anesthesia— it is a lighter form of unconsciousness. Dr. Strader is not an anesthesiologist. While Dr. Strader testified that he was aware that midazolam was approved for use in “anesthesia,” and he “thinks some anesthesiologists use it for that purpose,” Dr. Strader did not have “any direct knowledge of what they do.” The midazolam package insert corroborates this difference between sedation and anesthesia, noting that while “sedation” may take 3-5 minutes, use of midazolam as an anesthetic induction agent can take as little as 2 minutes without narcotic premedication.²⁷ Even Dr. Strader acknowledges it can take up to two minutes for the blood pressure drop to occur, with the heart attack beginning thereafter.

Moreover, it is uncontroverted that midazolam’s sedative or anesthetic effect is dose-dependent, meaning that the effects of midazolam are stronger and occur more quickly with an increase in the dosage. Dr. Strader could not give an opinion about how long it would take a person to be rendered unconscious after being given a 500 mg dose of midazolam because that is “outside [his] realm of practice.”

²⁷ We recognize that Dr. Buffington stated in his rebuttal declaration that a rapid infusion of midazolam could result in induction of anesthesia in as little as 30 seconds. We need not rely on his testimony, however, because Dr. Strader has no expertise in doses of midazolam for anesthesia or anesthesia at all.

As to his time gap estimate, Dr. Strader only extrapolated from his clinical practice of 2-5 mg of midazolam as to the onset of both the sedative and hemodynamic effects of 500 mg of midazolam. Arthur is correct that, in certain situations, opinions based on extrapolations from available data are permissible. Glossip, 135 S. Ct. at 2740, 2741 (explaining that “because a 500-milligram dose is never administered for a therapeutic purpose, extrapolation was reasonable.”). But merely because extrapolation may be reasonable in some circumstances, does not mean that all extrapolated opinions are reliable.

Simply put, Dr. Strader presented only speculative evidence regarding the first number in his attempt at a time-gap measurement. Indeed, when asked how long it would take to render a patient unconscious using a 500-mg dose of midazolam, he was never able to provide an answer, acknowledging that this was “outside [his] realm of practice.” The problem for Arthur is not that Dr. Strader engaged in extrapolation, it is that Dr. Strader did not have sufficient information to extrapolate from. In other words, while an opinion based on extrapolation is allowed, there must be some basis for that extrapolation. While experts “commonly extrapolate from existing data . . . nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert.” Joiner, 522 U.S. at 146, 118 S. Ct. at 519. Rather, the district court is allowed to “conclude that there

is simply too great an analytical gap between the data and the opinion proffered.”

Id.

When carefully analyzed, it is apparent that the methodology Dr. Strader used to reach his opinion regarding the time “gap” between the hemodynamic and sedative effects of midazolam was not reliable, nor was Dr. Strader qualified to testify competently as to these matters. See Kilpatrick, 613 F.3d at 1335. Thus, the district court did not abuse its discretion in ruling that Dr. Strader’s ultimate opinion that Arthur was likely to suffer a heart attack upon administration of 500-mg of midazolam before being rendered unconscious was speculative, inadmissible under Daubert, and insufficient to meet Arthur’s burden.

Without Dr. Strader’s opinion, Arthur had no evidence whatsoever to meet his burden of demonstrating that, as applied to him, Alabama’s current lethal injection protocol was “sure or very likely to cause serious illness and needless suffering, and give rise to sufficiently imminent dangers.” Glossip, 135 S. Ct. at 2737 (emphasis and internal quotation marks omitted). Thus, there was no genuine dispute of material fact on this “as-applied” claim, and the district court properly granted summary judgment for the ADOC.

But even if Dr. Strader’s opinion as to the time gap should have been admitted, it does not change the fact that Arthur has not met his burden to show a known and available alternative method of execution (for him with his health

concerns) that “significantly reduce[s]” a substantial risk of severe pain in Arthur. See id. (internal quotation marks omitted).

XVII. EQUAL PROTECTION CLAIM ABOUT CONSCIOUSNESS ASSESSMENT

Arthur argues that the district court erroneously applied Eighth Amendment law from Baze and Glossip to his distinct Fourteenth Amendment Equal Protection claim. Arthur claims that members of the ADOC’s execution team (1) did not perform the consciousness assessment properly; and (2) were not medically or adequately trained on the consciousness assessment, which requires they pinch inmates with enough force to “gauge anesthetic depth.” Arthur contends that, if Alabama is to use a consciousness assessment as part of its execution protocol, the assessment should be performed adequately.

At trial, the parties presented conflicting evidence as to whether the ADOC execution team had adequately performed the consciousness assessment at past executions. The district court made a factual finding that the testimony from ADOC’s witnesses were to be afforded more weight and, accordingly, it found that the assessment had been adequately performed “in every instance” based on ample evidence. The district court’s findings were not clearly erroneous.²⁸

²⁸ To the extent that Arthur argues that the ADOC employees disagreed on how the results of a consciousness check should have been communicated to the warden, the point is immaterial because the ADOC-employee witnesses testified that an inmate never gave a reaction after the consciousness assessment was performed.

Relying on language from Baze and Glossip, the district court also determined that the Eighth Amendment does not require that “sophisticated” medical training and standards be employed in a consciousness assessment during an execution. Summing up, the district court wrote that:

Arthur’s attempt to apply a medical standard of care to execution procedures and training for them, in this case, procedures that are not required by the Eighth Amendment, does not state a plausible equal protection claim. This principle is applicable to Arthur’s Equal Protection claim challenging the “adequacy” of the consciousness assessment and the training therefor, including the force used in the pinch test.

The district court did not err in rejecting the training portion of Arthur’s Equal Protection claim. Arthur’s arguments ignore the district court’s explicit factual finding that “the consciousness assessment has been adequately performed in every instance in which it was required, [and] no deficiency in training, practice, or procedure is found,” which led to the court’s conclusion of law that the ADOC had not “otherwise deviated substantially from its execution protocol.” (Emphasis added).

Moreover, we discern no error in the district court’s application of Baze and Glossip to Arthur’s Equal Protection claim. As we previously explained in our 2012 opinion, the crux of Arthur’s Equal Protection claim was whether “Alabama has substantially deviated from its execution protocol in a manner that significantly reduces inmate safeguards” and whether this “reduction in safeguards burdens his

right to be free from cruel and unusual punishment.” Arthur, 674 F.3d at 1263.

The district court’s conclusions regarding whether Alabama had substantially deviated from its execution protocol thus implicates Arthur’s right to be free from cruel and unusual punishment. As to this issue, the Equal Protection question necessarily intertwines with Eighth Amendment principles.

To satisfy Arthur, all ADOC execution team members must pinch inmates with approximately identical force and pinch as hard as they can because this is the standard used in a medical setting. But this is not what the Constitution requires. In Baze, the petitioners faulted Kentucky’s protocol for lacking a system to monitor the prisoner’s anesthetic depth. 553 U.S. at 58-59, 128 S. Ct. at 1536. Although Kentucky had other safeguards in place, including “visual inspection” by the warden and deputy warden of whether the inmate was unconscious, the petitioners requested that “qualified personnel . . . employ monitoring equipment, such as a Bispectral Index (BIS) monitor, blood pressure cuff, or EKG to verify that a prisoner has achieved sufficient unconsciousness before injecting the final two drugs.” Id. at 59, 128 S. Ct. at 1536. The petitioners claimed that visual inspection by the warden and deputy warden “is an inadequate substitute for the more sophisticated procedures they envision.” Id. The Supreme Court rejected the petitioners’ argument, writing that “these supplementary procedures, drawn from a

different context, are [not] necessary to avoid a substantial risk of suffering.” Id. at 60, 128 S. Ct. at 1536.

And in Glossip, the Supreme Court pointed to its conclusion in Baze that “although the medical standard of care might require the use of a blood pressure cuff and an [EKG] during surgeries, this does not mean those procedures are required for an execution to pass Eighth Amendment scrutiny.” 135 S. Ct. at 2742. Thus, the Glossip Court concluded, “the fact that a low dose of midazolam is not the *best* drug for maintaining unconsciousness during surgery says little about whether a 500-milligram dose of midazolam is *constitutionally adequate* for purposes of conducting an execution.” Id.

We leave for another day the question of whether an additional safeguard such as Alabama’s consciousness assessment is constitutionally required under the Eighth Amendment. It is enough that the district court found that Alabama does conduct the consciousness assessment as part of its lethal injection protocol, and the Supreme Court has made clear that the safeguards implemented during an execution need not match a medical standard of care. See Baze, 553 U.S. at 58-60, 128 S. Ct. at 1536; Glossip, 135 S. Ct. at 2742. Thus, whether the execution team at Holman pinches inmates with the same level of force used during medical practice is not dispositive of this claim. In other words, because a medical-grade pinch is not required under the Constitution, there can be no Equal Protection

claim that such a medical-grade pinch is not uniformly performed. Thus, the district court's rejection of Arthur's Equal Protection claim is due to be affirmed.

XVIII. FIRING SQUAD CLAIM

Arthur argues that the district court improperly denied him leave to amend his Second Amended Complaint to plead the firing squad as an alternative method of execution. Arthur made this request in August 2015, four years after he filed this third § 1983 action back in 2011 and 13 years after Alabama adopted lethal injection as its method of execution.

The district court's operative order did not expressly state that its denial was based either on futility (as Arthur claims) or on prejudice and undue delay (as the State contends), although it listed all of these as reasons that it could deny leave to amend under the law. Instead, the district court concluded that "execution by firing squad is not permitted by [Alabama] statute and, therefore, is not a method of execution that could be considered either feasible or readily implemented by Alabama at this time." Even under a de novo standard of review,²⁹ we affirm the district court's denial of leave to amend, but on multiple grounds, including

²⁹ The parties dispute whether we should review Arthur's firing-squad claim de novo or merely for an abuse of discretion. We generally review the denial of a motion for leave to amend a complaint for abuse of discretion. McKinley v. Kaplan, 177 F.3d 1253, 1255 (11th Cir. 1999). But a district court's decision to deny leave to amend based on futility is a legal conclusion, and we review such decisions de novo. Mizzaro v. Home Depot, Inc., 544 F.3d 1230, 1236 (11th Cir. 2008). We need not resolve this standard-of-review issue because Arthur's firing-squad arguments on appeal lack merit under even de novo review.

futility, as Arthur never showed Alabama’s current lethal injection protocol, per se or as applied to him, violates the Constitution.

Again, under controlling Supreme Court precedent, Arthur had the burden to plead and prove both that (1) Alabama’s current three-drug protocol is “sure or very likely to cause serious illness and needless suffering, and give rise to sufficiently imminent dangers”; and (2) there is an alternative method of execution that is feasible, readily implemented, and in fact significantly reduces the substantial risk of pain posed by the state’s planned method of execution. Glossip, 135 S. Ct. at 2737 (quoting Baze, 553 U.S. at 50, 128 S. Ct. at 1520) (internal quotation marks and emphasis omitted). Arthur has not satisfied either prong.

Because Arthur did not satisfy the first prong as to midazolam, that means his firing-squad claim fails in any event. Indeed, as outlined in great detail above, Arthur has not carried his heavy burden to show that Alabama’s current three-drug protocol—which is the same as the protocol in Glossip—is “sure or very likely to cause” Arthur serious illness, needless suffering, or a substantial risk of serious harm. See id. at 2737 (internal quotation marks and emphasis omitted). The district court stayed Arthur’s execution and then waited for Glossip to be decided. Both the Supreme Court and this Court have upheld the midazolam-based execution protocol that Arthur challenges here. See Glossip, 135 S. Ct. at 2739-40; Brooks, 810 F.3d at 818-19; Chavez, 742 F.3d at 1269, 1273. And even as applied

to Arthur individually, Arthur did not present any admissible evidence or carry his burden to show that his execution under Alabama's lethal injection protocol would cause him to suffer a substantial risk of serious harm.

As an alternative and independent ground, even if Arthur had proved midazolam may likely cause him harm, which he has not done, Arthur's proposed amendment failed to show that execution by firing squad is a feasible, readily implemented, and significantly safer alternative method of execution when compared to Alabama's planned lethal-injection method of execution that has been repeatedly approved by the courts and successfully carried out in the past. See Glossip, 135 S. Ct. at 2734, 2740-46.

Alabama's execution statute is Ala. Code § 15-18-82.1. By way of review, that statute allows all persons sentenced to death to choose between two methods of execution, providing that death sentences "shall be executed by lethal injection, unless the person sentenced to death affirmatively elects to be executed by electrocution." Ala. Code § 15-18-82.1(a) (emphasis added). Only if "electrocution or lethal injection is held to be unconstitutional by the Alabama Supreme Court . . . [or] the United States Supreme Court . . . , or if the United States Supreme Court declines to review any judgment holding a method of execution to be unconstitutional . . . made by the Alabama Supreme Court or the United States Court of Appeals that has jurisdiction over Alabama" can the ADOC

carry out Arthur's execution by "any constitutional method of execution." Id. § 15-18-82.1(c). And, finally, "[i]n any case in which an execution method is declared unconstitutional, the death sentence shall remain in force until the sentence can be lawfully executed by any valid method of execution." Id. § 15-18-82.1(h).

Arthur's main argument has three parts: (1) that under the Alabama statute, Alabama can execute him by "any constitutional method of execution," (2) that a firing squad is still today a constitutionally valid method of execution, and (3) that Alabama cannot prevent him from electing to have a firing squad as his preferred constitutional method. This claim misreads the text of the Alabama statute and Supreme Court case law and fails for multiple reasons.

First, it is undisputed that a firing squad is not a currently valid or lawful method of execution in Alabama. Therefore, an Alabama state trial court would be without any authority to order Arthur to be executed by firing squad, just as the ADOC would be without authority to execute Arthur by that method, without the Alabama legislature fundamentally rewriting the state's method-of-execution statute or one of the courts named in the statute already striking down as unconstitutional either electrocution or lethal injection. But neither electrocution nor lethal injection has been declared unconstitutional by this Court, the Alabama Supreme Court, or the United States Supreme Court.

In this § 1983 suit, Arthur brings a narrow challenge to two aspects of Alabama’s lethal injection protocol (midazolam and the consciousness assessment) and does not argue or even suggest that lethal injection is per se unconstitutional – in fact, the main premise of his attack on the midazolam protocol is that it is more painful than the prior Alabama protocol using pentobarbital. Also, Arthur does not challenge the constitutionality of death by electrocution, or allege any facts establishing that electrocution involves a substantial risk of severe pain.³⁰ No court has held that lethal injection (or electrocution) as applied to Arthur in this case violates the Constitution. Therefore, the ADOC would not be able to carry out Arthur’s preferred death sentence without the Alabama legislature fundamentally rewriting its method-of-execution statute.

Arthur argues, nevertheless, that Glossip does not “require” that alternative methods of execution be statutorily authorized. In his proposed allegations, Arthur points to the fact that another state, Utah, has conducted three executions by firing squad since 1976, the most recent taking place in 2010. Arthur implies that, since the Utah legislature has approved death by firing squad, the Alabama

³⁰ The dissent admits that Arthur did not opt for death by electrocution because he did not opt for it under the statute during the allotted time frame. See Ala. Code § 15-18-82.1(b) (“The election for death by electrocution is waived unless it is personally made by the person in writing and delivered to the warden of the correctional facility within 30 days after the certificate of judgment pursuant to a decision by the Alabama Supreme Court affirming the sentence of death . . .”). But neither has Arthur claimed that execution by electrocution is unconstitutional, nor that the 30-day limit makes it unconstitutional. Thus, for purposes of the constitutional inquiry Arthur has raised, we cannot say that electrocution would not be a “feasible and readily implemented” alternative to lethal injection.

legislature could easily do the same. But Arthur misunderstands the state’s obligation under the Eighth Amendment. States that continue to have capital punishment are free to choose any method of execution they deem appropriate, so long as they conform to the requirements of the United States Constitution, and more particularly, to the constraints found in the Eighth Amendment. This recognition—that states are constrained by the United States Constitution—is wholly consonant with the plain language of the Supremacy Clause. See U.S. Const. art. VI, cl. 2 (“[The Constitution] shall be the supreme Law of the Land . . . Laws of any State to the Contrary notwithstanding.”). Alabama has chosen death by lethal injection or electrocution; the petitioner is not free to simply disregard those methods (and substitute his own) without satisfactorily establishing that those methods violate the constitutional command barring cruel and unusual punishment. To be clear, states remain subject to the Constitution, and the Constitution requires states to select a constitutional method of execution. But the state is not required to use Arthur’s chosen method (the firing squad) unless Arthur shows the methods the state selected are unconstitutional.

We do recognize that, in contrast to Alabama, Utah has a state statute that, while it prescribes lethal injection as the primary method of execution, allows the state to use a firing squad if (1) “a court holds that a defendant has a right to be executed by a firing squad,” (2) “a court holds that execution by lethal injection is

unconstitutional on its face” or “as applied,” or (3) “the sentencing court determines the state is unable to lawfully obtain the substance or substances necessary to conduct an execution by lethal intravenous injection.” Utah Code Crim. Proc. § 77-18-5.5(1)-(4). Similarly, Oklahoma law provides for firing squad as the quaternary option for carrying out an execution, making it available only after execution by lethal injection, nitrogen hypoxia, and electrocution are all declared unconstitutional. See Okla. Stat. tit. 22, § 1014 (2016).

Utah and Oklahoma are the only states that have statutes contemplating execution by firing squad, and lethal injection is still the primary method of execution in both of those states, as it is in every state that allows for capital punishment. Thus, to the extent that Arthur relies on dicta from Glossip³¹ concerning “other acceptable, available methods,” Oklahoma law expressly allowed both the firing squad and electrocution. Okla. Stat. tit. 22, § 1014

³¹ While the dissent claims that the firing squad is a “valid” alternative, the Supreme Court majority in Glossip did not opine about whether a firing squad remains a constitutional alternative to lethal injection, as that was not the issue before the Court in Glossip. The Glossip majority noted only that, back in 1879, the Supreme Court upheld a sentence of death by firing squad, citing Wilkinson v. Utah, 99 U.S. 130 (1879). Glossip, 135 S. Ct. at 2732. The principal dissent in Glossip “goes out of its way to suggest that a State would violate the Eighth Amendment if it used one of the methods of execution employed before the advent of lethal injection.” Id. at 2739. But, as the majority in Glossip pointed out, if States cannot use one of the “more primitive” methods used in the past and also cannot use certain drugs to carry out an execution by lethal injection, “the logical conclusion is clear. But we have time and again reaffirmed that capital punishment is not per se unconstitutional.” Id. Here, we need not reach any issue about the constitutionality of a firing squad.

(2015).³² As we noted in Brooks, a prisoner must identify an alternative that is “known and available” to the state in question to meet the requirements in Baze and Glossip. 810 F.3d at 820 (explaining that petitioners must show that “there is now a source for pentobarbital that would sell it to the ADOC for use in executions” (emphases added)).

Arthur argues, nevertheless, that a state could “legislatively exempt” itself from Eighth Amendment review simply by adopting a narrow method of execution without any prescribed alternatives, thereby preventing challengers from identifying a statutorily authorized alternative method. But the Alabama legislature has authorized two methods of execution—lethal injection in any form and electrocution—and neither of its authorized methods has been deemed unconstitutional by a court, either per se or even as applied to Arthur. See Ala. Code. § 15-18-82.1(a), (c), (h). Arthur is not entitled to veto the Alabama legislature’s constitutional choice as to how Alabama inmates will be executed because there may still be other statutorily authorized (and unchallenged) methods available. As for the dissent’s argument that the state’s legislative choices should not affect whether an alternative could be feasible and readily implemented, the dissent refuses to acknowledge that the Alabama statute is not simply the result of the state’s “will,” but it is also very much constrained by the United States

³² Oklahoma later added nitrogen hypoxia as another authorized form of execution. Okla. Stat. tit. 22, § 1014 (2016).

Constitution. Absent a showing that Alabama's chosen methods of execution present an unconstitutional risk of severe pain, Alabama is under no obligation to deviate from its widely accepted, presumptively constitutional methods in favor of Arthur's retrogressive alternative.

Moreover, the Supreme Court has recognized that requiring a state to amend its method-of-execution statute or to authorize a variance from that statute "impos[es] significant costs on the State and the administration of its penal system." See Nelson v. Campbell, 541 U.S. 637, 644, 124 S. Ct. 2117, 2123 (2004). That is particularly true where, as here, the necessary legislation would retreat from a method of execution that is employed by the overwhelming majority of states that still authorize the death penalty and is widely considered the "most humane available," and would replace it with a method of execution that has long been abandoned by almost every state in this country.³³ See Baze, 553 U.S. at 62, 128 S. Ct. at 1537. As the Supreme Court has recognized, "[t]he firing squad, hanging, the electric chair, and the gas chamber have each in turn given way to more humane methods [of execution], culminating in today's consensus on lethal injection." Id. at 62, 128 S. Ct. at 1538; see also id. at 42, 128 S. Ct. at 1526-27 ("A total of 36 States have now adopted lethal injection as the exclusive or primary means of implementing the death penalty, making it by far the most prevalent

³³ This wide adoption of lethal injection also serves to undermine Arthur's argument that the district court's holding "will result in state-by-state variation in federal constitutional rights."

method of execution in the United States.’’). The dissent’s suggestion that our decision nullifies Arthur’s right to a “humane execution” by preventing his access to execution by firing squad is peculiar, and, moreover, flatly contradicted by the Supreme Court.

In considering whether Arthur’s proposed alternative is “feasible” and “readily implemented,” it is also important to note that the firing squad is a vastly different method of execution from electrocution and lethal injection, which are the only methods of execution that Alabama has employed in the past ninety years. As far as we can tell, Alabama has never carried out an execution by firing squad or statutorily recognized it as a method for carrying out executions. Indeed, Arthur does not say that any ADOC employee would have the first idea about how to carry out an execution by this method, and, undeniably, doing so would require a lot more than merely buying some new supplies for the ADOC to begin carrying out executions by this new method. The firing squad has not been used even in Utah since 2010. This sits in stark contrast to the numerous executions by lethal injection that were carried out across the country during the past decade or so. The fact that a few other states could theoretically carry out an execution by firing squad without violating their own laws tells us nothing about whether that method is, in fact, readily implementable for use in actual executions in Alabama today.

As we see it, our dissenting colleague errs in claiming that our opinion contravenes Baze and Glossip. Our dissenting colleague writes that, under our analysis, “if a state legislatively rejects an alternative, the alternative is not feasible and readily implemented. . . . State opposition . . . has no bearing on the ‘feasible and readily implemented’ inquiry as set forth in Baze and Glossip.” This is not at all what we have said. What we say is (1) Alabama has chosen two constitutional methods of execution, (2) Arthur has not shown that they are, or that either one is, unconstitutional (per se or as applied to him), and (3) Arthur is not entitled to veto the Alabama legislature’s choice of two constitutional methods of execution. Furthermore, by requiring Arthur to show a feasible, readily implementable, and significantly safer alternative, we are abiding by the rules set forth in the Supreme Court’s Baze and Glossip opinions, and also giving credence to Alabama’s prerogative to choose any constitutional method of execution it deems appropriate. It is true that neither Baze nor Glossip held that an execution alternative must be statutorily authorized as that, of course, was not the issue. But those opinions did not direct that we ignore constitutional state laws in employing constitutional methods of execution.

We are also unpersuaded by the concerns forwarded by Arthur and the dissent that giving this deference to states will effectively cut off inmates’ ability to advocate for more humane alternative methods of execution, as contemplated by

Baze and Glossip. We see no merit to the dissent's hypothesis that a state could, for example, offer the gas chamber as its method of execution. It seems clear that if a state's sole method of execution is deemed unconstitutional, while other methods remain constitutional (even if they are not authorized by the state statute), our inquiry into whether those other options are feasible and readily implemented would be a different one. Among other things, Alabama's statute plainly allows for other options if its statutory methods are declared unconstitutional, making those other options more feasible and readily implementable. But that is not the case here. Alabama's two methods of execution have not been declared unconstitutional, nor has Arthur even argued that they are.

Furthermore, our dissenting colleague is concerned that our opinion will foreclose all but lethal-injection-alternative challenges and that inmates can never win such suits due to the secrecy surrounding executions and states' admitted challenges in locating sources for the drugs. These practical constraints do not rob the State of Alabama, or any other state, of its right to choose the method of execution it wishes to use, so long as the state complies with the requirements of the United States Constitution. These constraints should also be weighed against the practical problems of instituting an untested (in Alabama) protocol for execution by firing squad. While Arthur points to Utah as an exemplar, the reality is that formulating a new protocol and locating the people and resources necessary

to carry out such an alternative (even if feasible, readily implementable, and significantly safer), would take considerable time and would, inevitably, lead to an entire new round of legal challenges regarding the details of the protocols for constitutionally conducting an execution by firing squad. Arthur's own nine-year history of § 1983 litigation well proves that point.³⁴

Arthur's strategy here to avoid execution is to claim that the ADOC should employ a profoundly different method of execution that is not legal in Alabama and has long been abandoned by states seeking to employ the "most humane" method of execution available, lethal injection. See Baze, 553 U.S. at 62, 128 S. Ct. at 1537. Arthur's strategic choice left him with a steep hill to climb, requiring him to show that this method of execution that is beyond the ADOC's statutory authority somehow could be feasible and readily implemented by the ADOC. He failed to surmount that obstacle.

For these reasons, the firing squad is not an alternative method of execution that is available, feasible, or readily implemented by the ADOC and, thus, the district court did not err in disallowing this third amendment to Arthur's complaint.

³⁴ The dissent isolates Arthur's firing-squad claim (first made in 2015) from the rest of his § 1983 case and complains that Arthur has not had any chance for discovery or a trial on that claim. But this argument wholly ignores that Arthur's complaint challenging Alabama's three-drug lethal injection protocol was filed in 2011, and Alabama changed the first drug to midazolam back in 2014. Thus, Arthur has had literally years of discovery and even a 2016 evidentiary hearing to demonstrate that the midazolam drug protocol is, either per se or as applied, unconstitutional. But Arthur has never sustained his heavy burden. Arthur's firing-squad claim fails under both prongs of Glossip.

And furthermore, absent a showing that the methods chosen by the Alabama legislature pose an unconstitutional risk of pain, either per se or as applied to Arthur, the Constitution does not compel Alabama to search for a new method. Accordingly, we find that amending Arthur's Second Amended Complaint to add the firing squad as an alternative method of execution would have been futile, and affirm the district court's denial of leave to amend.³⁵

XIX. CONCLUSION

The district court did not err in entering final judgment in favor of the ADOC and against Arthur on all claims. Accordingly, we affirm.

Given that this Court has determined Arthur's appeal lacks merit, the Court denies Arthur's motion to stay his November 3, 2016 execution for failure to show a likelihood of success on the merits of his claims. "It is by now hornbook law that a court may grant a stay of execution only if the moving party establishes that:

³⁵ As an alternative and independent ground, we also conclude Arthur's firing-squad claim is barred by laches. See Williams v. Allen, 496 F.3d 1210 (11th Cir. 2007) (upholding dismissal of § 1983 method-of-execution action based on unreasonable delay); Jones v. Allen, 485 F.3d 635 (11th Cir. 2007) (denying a stay). The Supreme Court made clear in 2008—three years before Arthur filed this § 1983 case in 2011—that a petitioner-inmate had the burden to show that a proffered alternative was "feasible, readily implemented, and in fact significantly reduce[d] a substantial risk of severe pain," such that the state's failure to adopt that alternative constituted cruel and unusual punishment under the Eighth Amendment. Baze, 553 U.S. at 41, 52, 128 S. Ct. at 1526, 1532. Despite this language, Arthur nevertheless waited until August 2015 before seeking to add this firing-squad alternative method to his § 1983 complaint. Such dilatory filing "leaves little doubt that the real purpose behind his claim is to seek a delay of his execution, not merely to effect an alteration of the manner in which it is carried out." Jones, 485 F.3d at 640. In light of this delay, there was no error in the district court's denying Arthur leave to amend to add his firing-squad claim in August 2015.

(1) he has a substantial likelihood of success on the merits; (2) he will suffer irreparable injury unless the injunction issues; (3) the stay would not substantially harm the other litigant; and (4) if issued, the injunction would not be adverse to the public interest.” Brooks, 810 F.3d at 818 (citation omitted) (internal quotation marks omitted). Because Arthur has not satisfied the first requirement for a stay, we need not reach the other three requirements.

AFFIRMED.

WILSON, Circuit Judge, dissenting:

Under the Majority’s decision, state law can dictate the scope of the Constitution’s protections. Thomas Arthur raises a method-of-execution claim proposing the firing squad as an execution alternative, and the Majority finds that state law defeats this constitutional claim. By misreading an Alabama statute, the Majority creates a conflict between the claim and state law. The Majority then resolves that faux conflict in favor of state law, taking the unprecedented step of ascribing to states the power to legislatively foreclose constitutional relief. These missteps nullify countless prisoners’ Eighth Amendment right to a humane execution.

I. INTRODUCTION

The Eighth Amendment guarantees a death row prisoner the right to relief when he faces a method of execution that is “*sure or very likely* to cause serious illness and needless suffering” and there is a “feasible” and “readily implemented” alternative that “significantly reduce[s] a substantial risk of severe pain.” *Baze v. Rees*, 553 U.S. 35, 50–52, 128 S. Ct. 1520, 1531–32 (2008) (plurality opinion) (internal quotation marks omitted); *Glossip v. Gross*, 576 U.S. ___, ___, 135 S. Ct. 2726, 2737 (2015). Arthur seeks to vindicate this right. He asserts that Alabama’s current three-drug lethal injection protocol is sure or very likely to cause him severe pain, and he seeks to amend his complaint to propose the firing squad as an

execution alternative.¹ The firing squad is a well-known, straightforward procedure that is regarded as “relatively quick and painless.”² See *Glossip*, 135 S. Ct. at 2739 (internal quotation marks omitted), *Baze*, 553 U.S. at 48, 128 S. Ct. at 1530. And one state has recently used the firing squad to execute a prisoner. See Kirk Johnson, *Double Murderer Executed by Firing Squad in Utah*, N.Y. Times (June 18, 2010), www.nytimes.com/2010/06/19/us/19death.html?_r=0.

Arthur should be permitted to amend his complaint to include the firing squad as an execution alternative to Alabama’s lethal injection protocol. The firing squad is a potentially viable alternative, and Arthur may be entitled to relief under *Baze* and *Glossip* based on that method of execution.

Arthur requested to amend his complaint shortly after the Supreme Court confirmed in *Glossip* that prisoners must plead and prove an execution alternative to obtain method-of-execution relief.³ The district court denied Arthur’s request

¹ Arthur’s proposed allegations about the firing squad are attached as an appendix.

² In recent years, several scholars have advocated for wider use of the firing squad. See Deborah W. Denno, *The Firing Squad As “A Known and Available Alternative Method of Execution” Post-Glossip*, 49 U. Mich. J. L. Reform 749 (2016); P. Thomas Distanislaio, III, Note, *A Shot in the Dark: Why Virginia Should Adopt the Firing Squad As Its Primary Method of Execution*, 49 U. Rich. L. Rev. 779 (2015); Alexander Vey, Note, *No Clean Hands in a Dirty Business: Firing Squads and the Euphemism of “Evolving Standards of Decency”*, 69 Vand. L. Rev. 545 (2016). One such scholar concluded that “the firing squad is the most viable ‘known and available [execution] alternative’ Indeed, [it] is the only current form of execution involving trained professionals, and it delivers a swift and certain death.” Denno, 49 U. Mich. J. L. Reform at 753 (quoting *Glossip*, 135 S. Ct. at 2731).

³ Given that Arthur requested to amend his complaint immediately after the Supreme Court’s decision in *Glossip*, the Majority’s conclusion that the request is barred by laches is unavailing. Indeed, in a similar case, the same district court judge who presided over Arthur’s proceedings rejected the Majority’s position. In *Boyd v. Myers*, the prisoner—a few weeks after

on futility grounds, finding that the “firing squad is not permitted by [an Alabama] statute and, therefore, is not a method of execution that could be considered either feasible or readily implemented by Alabama at this time.”

The Majority now affirms that finding. The Majority determines that the firing squad is not feasible and readily implemented because § 15-18-82.1 of the Alabama Code does not authorize the firing squad. Thus, according to the Majority, a state can restrict a prisoner’s access to Eighth Amendment relief by legislatively rejecting a viable execution alternative.

The Majority’s analysis of Arthur’s request to amend his complaint is legally flawed and has unacceptable consequences for death row prisoners throughout this circuit.⁴ First, the Majority misreads § 15-18-82.1; that statute is not a barrier to

the *Glossip* decision—sought to amend his complaint to include the firing squad, and the State argued that the request was untimely. *See* No. 2:14-cv-1017-WKW, slip op. at 6–7 (M.D. Ala. Oct. 7, 2015). The district court judge concluded that, because “*Glossip* clarified” the “execution alternative” requirement and the prisoner made his request shortly after *Glossip*, the request was timely. *See id.* at 6, 10.

⁴ As an initial matter, the Majority appears to confuse the posture of Arthur’s firing-squad claim. Arthur has only moved to add to his complaint the firing-squad claim. He has not been provided an opportunity to proceed to discovery, summary judgment, or trial on the claim. Evidence and proof therefore have no relevance in the discussion of whether the district court erred in denying Arthur relief on this issue. However, in arguing the futility of Arthur’s request, the Majority emphasizes Arthur’s failure to “present any admissible evidence”—a feat that Arthur is expected to accomplish in the absence of the amended pleading and corresponding discovery.

Although a district court has discretion in whether to grant a request to amend the complaint, the court in denying the request must articulate a valid reason for the denial. *See* 3-15 Moore’s Federal Practice § 15.15 (Matthew Bender 3d ed.) (“[A] trial court must provide a reason for denying a motion to amend.”); Fed. R. Civ. P. 15(a)(2) (“The court should freely give leave [to amend a pleading] when justice so requires.”). The Majority claims that the district court could have listed several reasons for its denial here, but the court offered only one reason:

Arthur relying on the firing squad. The plain language of § 15-18-82.1 permits Alabama to turn to the firing squad under the circumstances presented here.

Section 15-18-82.1 states, in relevant part:

(c) If electrocution or lethal injection is held to be unconstitutional by . . . the United States Supreme Court under the United States Constitution, or if the United States Supreme Court declines to review any judgment holding a method of execution to be unconstitutional under the United States Constitution made by . . . the United States Court of Appeals that has jurisdiction over Alabama, all persons sentenced to death for a capital crime shall be executed by any constitutional method of execution.

....

(h) No sentence of death shall be reduced as a result of a determination that a method of execution is declared unconstitutional under the Constitution of Alabama of 1901, or the Constitution of the United States. In any case in which an execution method is declared unconstitutional, the death sentence shall remain in force until the sentence can be lawfully executed by any valid method of execution.

Ala. Code § 15-18-82.1 (2002). The Majority concludes that Alabama cannot deviate from a prisoner's designated method of execution unless electrocution or

futility due to an Alabama statute. We review a finding of futility de novo. *Mizzaro v. Home Depot, Inc.*, 544 F.3d 1230, 1236 (11th Cir. 2008). And this dissent argues that under de novo review, the Majority's finding of futility based on Alabama law is erroneous.

lethal injection is declared per se unconstitutional.⁵ Because no court has declared electrocution or lethal injection per se unconstitutional, the Majority holds that § 15-18-82.1 forbids the firing squad.

This interpretation of § 15-18-82.1 does not pass muster. Subsection (h) allows Alabama to turn to the firing squad—a “valid method of execution”—in “case[s]” where our court declares Alabama’s planned “execution method” for a prisoner unconstitutional. *See* § 15-18-82.1(h). Alabama’s planned “execution method” for Arthur is Alabama’s three-drug lethal injection protocol, and Arthur claims that the protocol is unconstitutional. *See id.* If our court agreed with him, then subsection (h) would allow Alabama to utilize the firing squad to enforce Arthur’s death sentence. Because this case could implicate subsection (h) and open the door to the firing squad, § 15-18-82.1 is not a barrier to Arthur relying on the firing squad. Arthur’s firing-squad claim thus conflicts only with the Majority’s flawed interpretation of Alabama law, not Alabama law itself.

Second, even if § 15-18-82.1 did not permit the firing squad here, the Majority’s conclusion that the statute precludes Arthur from relying on the firing squad would *still* be erroneous. The Majority contravenes *Baze* and *Glossip*, as well as the Supremacy Clause, in relying on a state statute to limit Arthur’s access

⁵ The Majority however muddies this finding, as it also appears to reach a contradictory conclusion: that Alabama cannot turn to a non-designated method of execution unless a prisoner attacks both electrocution *and* lethal injection.

to Eighth Amendment relief. Under *Baze* and *Glossip*, a state cannot make an execution alternative not feasible and readily implemented by legislatively rejecting the alternative. A state's rejection of an execution alternative is irrelevant to the "feasible and readily implemented" inquiry. Moreover, in holding that a state can dictate that inquiry and foreclose an execution alternative, the Majority infringes the Supremacy Clause. The Majority's holding affords states the power to thwart viable method-of-execution claims. That is unprecedented. States cannot render an execution alternative not feasible and readily implemented—and thereby insulate themselves from constitutional scrutiny—by opposing the alternative through legislation or any other means. The Supremacy Clause precludes that type of state incursion on the Eighth Amendment.

Finally, the practical consequences of the Majority's mistakes are deeply troubling. The Majority's decision nullifies countless prisoners' right to a humane execution. Based on the Majority's approach to § 15-18-82.1, Alabama prisoners such as Arthur must rely on lethal-injection-based execution alternatives⁶ to obtain method-of-execution relief. A myriad of Florida prisoners are likewise limited to lethal-injection-based alternatives because Florida has a statute that is identical to § 15-18-82.1, *compare* Ala. Code § 15-18-82.1, *with* Fla. Stat. § 922.105 (2005).

⁶ Lethal injection is not a unitary form of execution; it is a category of execution that can be carried out using a variety of methods. I use the term "lethal-injection-based execution alternative" to refer to an execution method that falls within that category.

However, due to the scarcity of and secrecy surrounding lethal injection drugs, identifying an available lethal-injection-based alternative is a Sisyphean task. Consequently, relief under *Baze* and *Glossip* is now a mirage for prisoners across Alabama and Florida.

II. THE PLAIN LANGUAGE OF § 15-18-82.1 PERMITS THE FIRING SQUAD.

Arthur's request to die by the firing squad is not at odds with Alabama law. The plain language of § 15-18-82.1 permits Alabama to turn to the firing squad under the circumstances presented here. The Majority erroneously concludes that the statute bars Alabama from using the firing squad to execute Arthur. The Majority's misreading of the statute not only creates a faux conflict with Arthur's firing-squad claim but also impairs Alabama's ability to enforce the death penalty.

Section 15-18-82.1 states:

- (a) A death sentence shall be executed by lethal injection, unless the person sentenced to death affirmatively elects to be executed by electrocution.
- (b) A person convicted and sentenced to death for a capital crime at any time shall have one opportunity to elect that his or her death sentence be executed by electrocution. The election for death by electrocution is waived unless it is personally made by the person in writing and delivered to the warden of the correctional facility within 30 days after the certificate of judgment pursuant to a decision by the Alabama Supreme Court affirming the sentence of death or, if a

certificate of judgment is issued before July 1, 2002, the election must be made and delivered to the warden within 30 days after July 1, 2002.

- (c) If electrocution or lethal injection is held to be unconstitutional by the Alabama Supreme Court under the Constitution of Alabama of 1901, or held to be unconstitutional by the United States Supreme Court under the United States Constitution, or if the United States Supreme Court declines to review any judgment holding a method of execution to be unconstitutional under the United States Constitution made by the Alabama Supreme Court or the United States Court of Appeals that has jurisdiction over Alabama, all persons sentenced to death for a capital crime shall be executed by any constitutional method of execution.

....

- (f) Notwithstanding any law to the contrary, a person authorized by state law to prescribe medication and designated by the Department of Corrections may prescribe the drug or drugs necessary to compound a lethal injection. Notwithstanding any law to the contrary, a person authorized by state law to prepare, compound, or dispense medication and designated by the Department of Corrections may prepare, compound, or dispense a lethal injection.

....

- (h) No sentence of death shall be reduced as a result of a determination that a method of execution is declared unconstitutional under the Constitution of Alabama of 1901, or the Constitution of the United States. In any

case in which an execution method is declared unconstitutional, the death sentence shall remain in force until the sentence can be lawfully executed by any valid method of execution.

Ala. Code § 15-18-82.1. Alabama enacted this section in 2002 when it first changed its default method of execution from electrocution to lethal injection. In doing so, Alabama shrewdly expected challenges to the constitutionality of lethal injection and its administration of lethal injection. Section 15-18-82.1 not only prescribes lethal injection as the default method of execution but also establishes contingency plans in the event that: (1) lethal injection is declared per se unconstitutional or (2) Alabama's lethal injection protocol is declared unconstitutional.

Subsections (a) and (b) of § 15-18-82.1 designate lethal injection as Alabama's primary method of execution, while affording prisoners a one-time opportunity to choose electrocution as their designated method in lieu of lethal injection. And subsections (c) and (h) afford Alabama the flexibility to deviate from a prisoner's designated method of execution and specific execution protocol if either is declared unconstitutional. Those subsections serve as complementary safety valves, ensuring that Alabama can fulfill its goal of carrying out executions. Subsection (c) guarantees Alabama flexibility by providing that Alabama can utilize "any constitutional method of execution" if lethal injection or electrocution

is struck down as per se unconstitutional. § 15-18-82.1(c). Subsection (h) complements subsection (c), as it protects Alabama's ability to carry out an execution when a prisoner successfully attacks the specific lethal-injection or electrocution protocol that Alabama plans to use to kill him. That subsection states that Alabama can turn to "any valid method of execution" in "any case" in which its planned "execution method is declared unconstitutional." § 15-18-82.1(h).

Arthur's designated method of execution is lethal injection, as he did not opt for electrocution during the time period allotted in subsection (b). *See* § 15-18-82.1(a), (b). Pursuant to subsection (f), the Alabama Department of Corrections has elected to carry out Arthur's lethal injection using a three-drug, midazolam-based protocol. Arthur asserts that this planned "execution method" violates the Eighth Amendment. *See* § 15-18-82.1(h). If our court agreed with Arthur, then Alabama would be able to resort to "any valid method of execution," including the firing squad, to fulfill its goal of executing Arthur. *See id.; Glossip*, 135 S. Ct. at 2732 (noting that the firing squad is a presumably valid, constitutional method of execution). As such, through this litigation, § 15-18-82.1(h)'s safety valve could be implicated, thereby opening the door to the firing squad. The firing squad is a plausible execution alternative in Alabama.

However, the Majority departs from the plain language of § 15-18-82.1 and concludes that the statute bars the firing squad here. The Majority makes a

threshold error by determining that Alabama currently authorizes both electrocution and lethal injection as methods of execution for Arthur. *See* Maj. Op. at 103 (“Alabama has chosen death by lethal injection or electrocution.”). Based on that finding, the Majority suggests that Arthur cannot rely on the firing squad because he has not challenged both lethal injection and electrocution. But the text of subsections (a) and (b) belie the Majority’s conclusion that Alabama has “chosen” both lethal injection and electrocution for Arthur. Because Arthur did not opt for electrocution, he “shall be executed by lethal injection.” *See* Ala. Code § 15-18-82.1 (a), (b). Therefore at this time § 15-18-82.1 authorizes Alabama to kill Arthur only by lethal injection. Alabama has not “chosen” electrocution for Arthur merely because electrocution is mentioned in the statute as a contingency option. If that were the case, then “any valid method of execution” would also be “chosen” for Arthur. *See* § 15-18-82.1(h). Moreover, the Majority’s suggestion that Arthur was required to attack electrocution *and* lethal injection to trigger § 15-18-82.1’s safety valves is clearly inconsistent with the statute. Neither subsection (c) nor subsection (h) states that lethal injection *and* electrocution must be struck down to trigger its safety valve.

The Majority also erroneously determines that under § 15-18-82.1 Alabama can turn to the firing squad *only* if lethal injection or electrocution is declared

per se unconstitutional.⁷ *See* Maj. Op. at 100–01 (suggesting that Alabama would have authority to use the firing squad if a court struck down “as unconstitutional either electrocution or lethal injection”). And since no court has declared either method per se unconstitutional, the Majority finds that § 15-18-82.1 precludes Alabama from using the firing squad in this case. A proper textual analysis reveals that subsection (h) forecloses this reading of the statute.

As noted above, subsection (h) states:

In any case in which an execution method is declared unconstitutional, the death sentence shall remain in force until the sentence can be lawfully executed by any valid method of execution.

Ala. Code § 15-18-82.1(h). At first glance, it is possible to read this sentence in a manner consistent with the Majority’s interpretation of § 15-18-82.1. That is, the sentence could be interpreted as permitting Alabama to turn to an alternative method of execution, such as the firing squad, only if lethal injection or electrocution is declared per se unconstitutional. But because, as the Majority concludes, subsection (c) stands for that exact proposition, interpreting subsection (h) to convey the same message violates an elementary rule of statutory interpretation—that we must give effect to each provision. *See United States v. Butler*, 297 U.S. 1, 65, 56 S. Ct. 312, 319 (1936) (“These words cannot be

⁷ Of course, this determination is inconsistent with the Majority’s suggestion that Alabama cannot turn to the firing squad absent an attack on both lethal injection *and* electrocution.

meaningless, else they would not have been used.”). The correct interpretation of subsection (h)—and the only interpretation that avoids surplusage—is that, if the specific “execution method” in a “case” is declared unconstitutional, Alabama can resort to “any valid method of execution.” *See* Ala. Code § 15-18-82.1(h).

This interpretation is also consistent with the subsections immediately preceding subsection (h). Subsections (f) and (g) charge the Department of Corrections with the administration of executions. *See* § 15-18-82.1(f), (g). Specifically, subsection (f) provides that the Department of Corrections shall designate who selects the drugs used in the administration of lethal injection, and subsection (g) exempts from Alabama’s ordinary rulemaking procedure the Department of Corrections’s “policies and procedures” for administering executions. *See* § 15-18-82.1(f), (g). Immediately following this discussion, subsection (h) is correctly understood to discuss the constitutionality of the Department of Corrections’s chosen execution protocol. *See* Antonin Scalia & Bryan A. Garner, *Reading Law* 167 (2012) (“Context is a primary determinant of meaning.”); *K Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 291, 108 S. Ct. 1811, 1818 (1988) (“In ascertaining the plain meaning of the statute, the court must look to the particular statutory language at issue, as well as the language and design of the statute as a whole.”). Based on the plain language of § 15-18-82.1, the statute permits Alabama to turn to the firing squad when its planned execution protocol

for a particular prisoner is declared unconstitutional. The Majority's interpretation clearly fails.

Yet, even assuming that the plain language of § 15-18-82.1 is ambiguous and the Majority's interpretation is plausible, the statute must still be read to permit the firing squad in this case. In the face of such ambiguity, an interpretation that "furthers rather than obstructs [the statutory text]'s purpose should be favored." *See* Scalia, *supra*, at 63; *SEC v. C.M. Joiner Leasing Corp.*, 320 U.S. 344, 350, 64 S. Ct. 120, 123 (1943) ("[C]ourts [sha]ll construe the details of an act in conformity with its dominating general purpose."). This rule of statutory construction militates against the Majority's interpretation of § 15-18-82.1.

The purpose of subsections (c) and (h) is clear: to ensure that Alabama can enforce the death penalty through an alternative form of execution when its chosen means of executing a prisoner is declared unconstitutional. Under the reading described above, § 15-18-82.1 provides Alabama the authority to (1) turn to an alternative form of execution upon a per se finding that lethal injection or electrocution is unconstitutional, *see* Ala. Code § 15-18-82.1(c), *and* (2) employ "any valid method of execution" when its specific execution protocol is declared unconstitutional, *see* § 15-18-82.1(h). In contrast, the Majority's interpretation affords Alabama the authority to use an alternative form of execution only when lethal injection or electrocution is declared per se unconstitutional. This reading

plainly limits Alabama's ability to turn to an alternative form of execution in the face of constitutional scrutiny. The interpretation obstructs the purpose of subsections (c) and (h) and impairs Alabama's ability to enforce the death penalty.

The Majority's determination that § 15-18-82.1 precludes Arthur from relying on the firing squad is inconsistent with the plain language of the statute and the purpose underlying subsections (c) and (h). Arthur's firing-squad claim conflicts only with the Majority's flawed interpretation of Alabama law, not Alabama law itself.

III. THE MAJORITY'S RELIANCE ON STATE LAW CONTRAVENES *BAZE*, *GLOSSIP*, AND THE SUPREMACY CLAUSE.

Even assuming that § 15-18-82.1 does not permit the firing squad under the present circumstances, the Majority's dismissal of Arthur's claim would *still* be erroneous. The Majority's rejection of the firing squad rests on its determination that, if a state legislatively opposes an execution alternative, then the alternative is not feasible and readily implemented and method-of-execution relief is foreclosed. State law however is irrelevant to the Eighth Amendment inquiry established by *Baze* and *Glossip*, and more fundamentally, under the Supremacy Clause, state law cannot thwart a viable constitutional claim. In relying on state law to deny Arthur relief, the Majority commits constitutional error. The Majority's decision in effect turns *Baze* and *Glossip*'s method-of-execution test—a test designed to protect the Eighth Amendment rights of death row prisoners—into a test that narrows, and in

many cases defeats, those rights. This transformation is not only unprecedented, it is completely unmoored from precedent.

A. *Baze* and *Glossip*

1. An Overview of *Baze* and *Glossip*

In *Baze*, the Supreme Court first held that a method-of-execution claimant must identify a “feasible” and “readily implemented” execution alternative that “significantly reduce[s] a substantial risk of severe pain.” *See Baze*, 553 U.S. at 52, 128 S. Ct. at 1532; *Glossip*, 135 S. Ct. at 2737. According to the *Baze* Court, “[i]f a [s]tate refuses to adopt . . . an alternative in the face of these documented advantages, without a legitimate penological justification for adhering to its current method of execution, then [the] [s]tate’s refusal . . . can be viewed as ‘cruel and unusual.’” *Baze*, 553 U.S. at 52, 128 S. Ct. at 1532. *Baze* neither placed any restrictions on the categories of execution alternatives that a claimant can rely on to demonstrate such cruel and unusual conduct, nor limited possible alternatives to those that the claimant’s state has approved. *See id.*, 128 S. Ct. at 1532. To satisfy *Baze*, an alternative must simply have the “documented advantages” of being “feasible, readily implemented,” and significantly safer than the state’s designated execution method. *See id.*, 128 S. Ct. at 1532.

Subsequently, *Glossip* confirmed this “execution alternative” requirement, stating:

The controlling opinion [in *Baze*] summarized the requirements of an Eighth Amendment method-of-execution claim as follows: . . . the condemned prisoner [must] establish[] that the [s]tate's [method of execution] creates a demonstrated risk of severe pain. And he must show that the risk is substantial when compared to the known and available alternatives.

Glossip, 135 S. Ct. at 2737 (internal quotation marks omitted). Consistent with *Baze*, *Glossip* also indicated that, when attempting to satisfy the “execution alternative” requirement, prisoners are neither limited to certain categories of execution alternatives nor constrained by state-approved alternatives. *See id.* at 2739 (stating that a prisoner is required only “to plead and prove a known and available alternative”); *id.* (rejecting the dissent’s argument that “the methods of execution employed before the advent of lethal injection,” such as the firing squad, are not permissible execution alternatives).

In *Glossip*, the prisoners argued that Oklahoma’s lethal injection cocktail posed an unacceptable risk of cruel and unusual punishment. They proposed a different cocktail as an execution alternative. However, the Court found that the proposed cocktail was not a “known and available” alternative because the record showed that “despite a good-faith effort,” Oklahoma was unable to procure the drugs in the cocktail. *Id.* at 2738. Due to the scarcity of those drugs, it was functionally impossible for Oklahoma to obtain them. *See id.* at 2733–34, 2738.

Our court has applied the “execution alternative” requirement on multiple occasions. We have found, in accord with *Glossip*, that a proposed execution alternative does not satisfy the requirement when a state is unable to obtain the materials necessary for the alternative. *See, e.g., Brooks v. Warden*, 810 F.3d 812, 820–21 (11th Cir. 2016) (concluding that, due to scarcity, the lethal injection cocktail that the prisoner proposed as an execution alternative was not available to Alabama), *cert. denied sub nom. Brooks v. Dunn*, 136 S. Ct. 979 (2016); *Chavez v. Fla. SP Warden*, 742 F.3d 1267, 1274 (11th Cir. 2014) (Carnes, C.J., concurring) (rejecting a method-of-execution claim in part because the prisoner admitted that the relevant lethal injection drug alternatives were unavailable), *cert. denied sub nom. Chavez v. Palmer*, 134 S. Ct. 1156 (2014). We have never concluded that an execution alternative fails to satisfy *Baze* and *Glossip* because a state has rejected the alternative by legislation or some other means.

2. The Majority’s Misapplication of *Baze* and *Glossip*

Although neither *Baze* nor *Glossip* holds that an execution alternative must be state authorized, the Majority imposes such a requirement on Arthur. The Majority finds that, if a state legislatively rejects an alternative, the alternative is not feasible and readily implemented. But the “feasible and readily implemented” inquiry cannot serve as a vessel for the Majority’s novel requirement. State opposition to an execution alternative—through legislation or any other means—

has no bearing on the “feasible and readily implemented” inquiry as set forth in *Baze* and *Glossip*.

Whether an execution is feasible and readily implemented is considered separately from a state’s rejection of the alternative. Again, in setting forth the “execution alternative” requirement, *Baze* emphasized:

[An] alternative procedure must be feasible, readily implemented, and in fact significantly reduce a substantial risk of severe pain. If a [s]tate refuses to adopt such an alternative in the face of these documented advantages, without a legitimate penological justification for adhering to its current method of execution, then a [s]tate’s refusal to change its method can be viewed as “cruel and unusual” under the Eighth Amendment.

Baze, 553 U.S. at 52, 128 S. Ct. at 1532. Hence, in considering a method-of-execution claim, we determine whether a proposed alternative has “documented advantages,” such as being feasible and readily implemented, and then we consider separately the state’s refusal to adopt the alternative. *See id.*, 128 S. Ct. at 1532. Those are clearly distinct inquiries. An alternative can have the “documented advantages” of being “feasible” and “readily implemented” even though a state “refuses to adopt” the alternative. *See id.*, 128 S. Ct. at 1532. A state’s decision to embrace or reject an alternative therefore does not bear on the “feasible and readily implemented” inquiry. Yet, under the Majority’s reasoning, when a state refuses to adopt an execution alternative—by, for example, passing legislation that rejects the alternative and then adhering to that legislation—the

alternative is ipso facto not feasible and readily implemented. That novel conclusion contravenes *Baze*.

Indeed, *Baze* and *Glossip*'s method-of-execution standard would be internally inconsistent if the "feasible and readily implemented" inquiry took into account a state's opposition—via legislation or another means—to an execution alternative. A state's refusal to adopt a viable execution alternative is the very conduct that gives rise to an Eighth Amendment violation under *Baze* and *Glossip*. *See id.*, 128 S. Ct. at 1532. The Eighth Amendment prohibits states from ignoring an "objectively intolerable risk of harm" when imposing punishment. *See id.* at 49–50, 128 S. Ct. at 1530–31 (internal quotation marks omitted). The method-of-execution standard implements this constitutional protection. When a state uses a dangerous method of execution and "refuses to adopt" an alternative that is feasible, readily implemented, and significantly safer than the state's method, the state ignores an avoidable risk of harm, thereby violating the Eighth Amendment. *See id.* at 52, 128 S. Ct. at 1532.

The Majority's decision allows this exact conduct to *shield* a state from method-of-execution liability. According to the Majority, Alabama has legislatively opposed the firing squad, and that "refus[al] to adopt" the firing squad defeats Arthur's method-of-execution claim. *See id.* at 52, 128 S. Ct. at 1532.

That application of *Baze* and *Glossip* is clearly inconsistent with those precedents. State law cannot render the firing squad not feasible and readily implemented.

B. The Supremacy Clause

Beyond its incongruence with *Baze* and *Glossip*, the Majority's treatment of state law conflicts with the Supremacy Clause. In determining that state law can thwart an execution alternative, the Majority improperly grants states the power to dictate the scope of federal constitutional relief. *See* U.S. Const. art. VI, cl. 2 (“[The Constitution] shall be the supreme Law of the Land . . . Laws of any State to the Contrary notwithstanding.”). The upshot of this novel allocation of power is that a state statute can abrogate prisoners' Eighth Amendment right to a humane execution.

Under the Majority's decision, § 15-18-82.1 constricts Eighth Amendment relief and protects Alabama from claims that are viable under *Baze* and *Glossip*. The Eighth Amendment guarantees method-of-execution relief when a prisoner identifies any viable alternative. *See Baze*, 553 U.S. at 51–52, 128 S. Ct. at 1531–32; *Glossip*, 135 S. Ct. at 2737–39. However, because the only method of execution that § 15-18-82.1 currently authorizes for Arthur is lethal injection, Arthur must identify a viable lethal-injection-based alternative to obtain method-of-execution relief. Any other type of alternative is not contemplated by

§ 15-18-82.1 and is not feasible and readily implemented.⁸ Section 15-18-82.1 thus severely restricts the circumstances in which Arthur can obtain method-of-execution relief. This narrowing of Arthur’s access to relief flouts the Supremacy Clause; states cannot override the Constitution’s protections. *See Reynolds v. Sims*, 377 U.S. 533, 582–84, 84 S. Ct. 1362, 1392–93 (1964) (“When there is an unavoidable conflict between the Federal . . . Constitution [and state law], the Supremacy Clause of course controls.”); *Cox v. Louisiana*, 348 F.2d 750, 752 (5th Cir. 1965) (“When a [s]tate . . . [limits] citizens [in] the exercise of their constitutional rights[,] . . . the federal system is imperiled.”).

The Majority’s state-law determination however does not merely allow states to constrict prisoners’ Eighth Amendment rights—it permits states to abrogate such rights. Moving forward, a state can pass legislation requiring all executions to be performed with a certain gas chamber protocol or a certain electrocution protocol, and since the legislation would authorize only those two particular protocols, no other protocol or method of execution would be feasible

⁸ While concluding that Arthur must rely on an alternative currently authorized by § 15-18-82.1, the Majority indicates that, under its reading of § 15-18-82.1, Arthur could have obtained relief based on an alternative that is not currently authorized if he successfully raised a per se challenge to lethal injection or electrocution. However, that point is a red herring. First, a prisoner such as Arthur who Alabama plans to kill via lethal injection has no standing to challenge electrocution. Second, it strains credulity to suggest that Arthur could, at this time, raise a legitimate argument that lethal injection is per se unconstitutional. Lethal injection is a category of execution that can be carried out in a variety of ways. A finding that lethal injection is per se unconstitutional would require a finding that every possible method of lethal injection is unconstitutional. Hence, it was not feasible for Arthur to successfully bring a per se challenge to electrocution or lethal injection. Such challenges do not provide a means for Arthur or others to obtain relief based on a method of execution not currently authorized by § 15-18-82.1.

and readily implemented. As a result, even in the face of evidence that both protocols are excruciatingly painful, condemned prisoners could never obtain relief from the protocols—it would be impossible to meet *Baze* and *Glossip*'s “execution alternative” requirement, and *Baze* and *Glossip* provide the only avenue for method-of-execution relief. The state's legislation would thus nullify prisoners' right to a humane execution.

Although this example is merely a hypothetical, it underscores the troubling constitutional issues that arise from the Majority's decision. The decision allows state law to trump the Eighth Amendment's basic guarantee against cruel and unusual punishment.⁹ *Contra* U.S. Const. art. VI, cl. 2.

IV. THE MAJORITY'S DECISION FORECLOSES RELIEF FOR PRISONERS ACROSS THIS CIRCUIT WHO ARE DESIGNATED TO DIE BY LETHAL INJECTION.

Prisoners in Alabama and Florida¹⁰ who, like Arthur, are designated to die by lethal injection must now identify a viable lethal-injection-based alternative to obtain method-of-execution relief. But given the “difficult realities” surrounding lethal injection drugs, that is not practicable. *See* Brief of Defendant-Appellee

⁹ These serious constitutional concerns provide yet another reason why the Majority's interpretation of § 15-18-82.1 is improper. Even if the text of the statute is susceptible both to the reading the Majority ascribes and to the one advanced above, because the reading advanced above avoids a clash with the Supremacy Clause, it is the one that must be employed. *See Clark v. Martinez*, 543 U.S. 371, 381, 125 S. Ct. 716, 724 (2005).

¹⁰ As previously noted, because Florida has a statute that is identical to § 15-18-82.1, the Majority's decision has the same consequences for Florida and Alabama prisoners. *Compare* Ala. Code § 15-18-82.1, *with* Fla. Stat. § 922.105.

at 10, *Arthur v. Comm’r, Ala. Dept. of Corr.*, ___ F.3d ___, No. 16-15549 (11th Cir. Oct. 11, 2016) (noting the practical barriers to identifying a viable lethal-injection-based alternative). Due to the scarcity of and secrecy surrounding lethal injection drugs, it is all but impossible for a prisoner to set forth a viable lethal-injection-based alternative. The Majority’s decision therefore checkmates countless Alabama and Florida prisoners, nullifying their constitutional right to a humane execution.

Many condemned prisoners have attempted to propose lethal injection drug alternatives in method-of-execution cases but those attempts have been futile because lethal injection drugs are extremely scarce. *See, e.g., Glossip*, 135 S. Ct. at 2738 (rejecting a method-of-execution claim after finding that “Oklahoma has been unable to procure [two formerly widely-used lethal injection] drugs despite a good-faith effort to do so”); *Brooks*, 810 F.3d at 820–21; *Chavez*, 742 F.3d at 1274 (Carnes, C.J., concurring) (discussing the scarcity of lethal injection drugs); *Sepulvado v. Jindal*, 729 F.3d 413, 416 (5th Cir. 2013) (“Since 2010, the first drug in [Louisiana’s former lethal injection] procedure—sodium thiopental—has been unavailable.”); *cf. Wood v. Ryan*, 759 F.3d 1076, 1097 (9th Cir. 2014) (Bybee, J., dissenting) (remarking that “Tennessee recently reauthorized the use of the electric chair as an alternative method of execution” due to concerns about the unavailability of “the drugs necessary to perform a lethal injection”), *vacated*,

135 S. Ct. 21 (2014); Distanislao, Note, 49 U. Rich. L. Rev. at 804–05 (“[A]mid . . . widespread drug shortages, capital punishment is losing its position as a functional element of American society.”). In fact, Arthur himself proffered to the district court two alternative lethal injection drug compounds, but the district court rejected those proposed alternatives after discovery, finding them unavailable to Alabama. *See Arthur v. Dunn (Dunn I)*, No. 2:11-cv-438-WKW-TFM, slip op. at 19–21 (M.D. Ala. Apr. 15, 2016); Brief of Defendant-Appellee at 10, *Arthur*, No. 16-15549. And the Majority now affirms that finding. *See Maj. Op.* at 68, 78.

Furthermore, to the extent that some limited supply of viable, alternative lethal injection drugs exists, prisoners cannot gather the information needed to use those drugs in a method-of-execution claim because details about lethal injection drugs and their suppliers are heavily concealed. *See, e.g., Arthur v. Thomas*, 674 F.3d 1257, 1263 (11th Cir. 2012) (per curiam) (noting “the veil of secrecy that surrounds Alabama’s execution protocol”); *Terrell v. Bryson*, 807 F.3d 1276, 1281 (11th Cir. 2015) (Martin, J., concurring) (discussing Georgia’s lethal injection “secrecy rules”). This veil of secrecy is evident here. Arthur was stonewalled in his attempts to gather information about the availability of the drugs in his proposed lethal injection compounds. According to testimony from an expert witness who asked members of the drug community about the availability of one of the compounds, “none of the pharmacists” that he spoke to “provided [him]

permission to share their names [or] contact information.” *See Arthur v. Dunn* (*Dunn II*), No. 2:11-cv-438-WKW-TFM, slip op. at 41 (M.D. Ala. July 19, 2016).

Another expert witness also spoke to the secrecy surrounding the compound, stating, “I have no knowledge of where any state has [in the past] secured [the compound].” *See Dunn I*, slip op. at 11 n.5.

The scarcity of and secrecy surrounding lethal injection drugs make it basically impossible to identify a “feasible” and “readily implemented” lethal-injection-based alternative that “significantly reduce[s] a substantial risk of severe pain.” *See Baze*, 553 U.S. at 52, 128 S. Ct. at 1532; *Glossip*, 135 S. Ct. at 2737. This bears out in our case law. Based on my research, no prisoner has ever successfully challenged his method of execution relying on a lethal-injection-based alternative.

Accordingly, the Majority’s decision all but forecloses method-of-execution relief for a myriad of Alabama and Florida prisoners.¹¹ This case is telling. Arthur proffered an execution alternative that was not lethal-injection-based, but the Majority’s interpretation of § 15-18-82.1 thwarted that potentially safe and available alternative, leaving Arthur with no choice but to rely solely on lethal-injection-based alternatives. Arthur attempted to identify such an alternative

¹¹ The Majority’s decision may also chill the rights of prisoners outside our circuit. Several states have legislation similar to § 15-18-82.1. *Compare* Ala. Code § 15-18-82.1, *with*, *e.g.*, Tenn. Code § 40-23-114 (2014); Ky. Rev. Stat. § 431.220–223 (1998).

but was stymied by the limited supply of lethal injection drugs and the secrecy surrounding such drugs. Checkmate.

V. CONCLUSION

The Majority misinterprets Alabama law, reads a new restriction into *Baze* and *Glossip* that is directly at odds with those decisions, and empowers states to thwart constitutional claims. Taken together, these errors have jarring practical consequences; relief under *Baze* and *Glossip* is now a mirage for prisoners across this circuit.

Arthur is entitled to amend his complaint and proceed with his method-of-execution claim proposing the firing squad.¹² I respectfully dissent.

¹² In addition to finding that the firing squad is not feasible and readily implemented, the Majority opines that the district court's denial of Arthur's request to amend was not error because Arthur has failed to prove that Alabama's three-drug lethal injection protocol is sure or very likely to cause serious harm. Based on the posture of this case, that is not a proper basis for affirming the district court. The parties have not litigated whether Alabama's protocol, as a general matter, is sure or very likely to cause serious harm. The district court dismissed all of Arthur's general method-of-execution claims based on the "execution alternative" requirement, and Arthur's as-applied challenge did not present the issue of whether the protocol is sure or very likely to cause serious harm to prisoners. Because the parties have not litigated that issue, the Majority's reliance on the issue is misplaced.

APPENDIX

In offering the firing squad as an execution alternative, Arthur's proposed complaint states:

Alternative #3 – Firing Squad

134. A third potential alternative is the firing squad. The Supreme Court has held that the firing squad is a constitutionally permissible form of execution. *See Wilkerson v. Utah*, 99 U.S. 130, 134–35 (1879) (upholding sentence of death by firing squad). Indeed, as recently as 2010 Utah executed an inmate by firing squad. On March 23, 2015, Utah Governor Gary Herbert signed into law an amendment providing that firing squads will serve as the backup method of execution if lethal injection drugs are not available.

135. Protocols for execution by firing squad, which has been carried out at least three times since 1976 without apparent incident, are known and available. For example, under Utah's recent law, the prisoner is seated in a chair set up between stacked sandbags to prevent the bullets from ricocheting. A target is pinned over the inmate's heart. Five shooters are set up approximately 25 feet from the chair where the prisoner is seated, with .30 caliber Winchester rifles pointing through slots in the wall. The gunmen are chosen from a pool of volunteer officers. (Utah Rep. Paul Ray, the sponsor of the firing squad bill, has said that there are always more volunteers than spots on the firing squad. Upon information and belief, the same would be true in Alabama and/or the State would otherwise be able to supply officers to carry out an execution.) The shooters' identities are kept anonymous, and one rifle is loaded with a blank so that no one knows which officer killed the inmate.

136. The firing squad is a known and available alternative in the state of Alabama. Upon information

and belief, there are numerous people employed by the State who have the training necessary to successfully perform an execution by firing squad. The State already has a stockpile of both weapons and ammunition.

137. Moreover, execution by firing squad, if implemented properly, would result in a substantially lesser risk of harm than the State's continued use of a three-drug protocol involving midazolam. Evidence and recent experience strongly suggest that the firing squad is "significantly more reliable than other methods." *Glossip*, 135 S. Ct. at 2796 (Sotomayor, J., dissenting). A recent study, which analyzed the contemporaneous news reports of all executions in the United States from 1900 to 2010, found that 7.12% of the 1,054 executions by lethal injection were "botched" and that 0 of the 34 executions by firing squad had been botched.

138. Accordingly, if implemented properly, an execution by firing squad is a known and available alternative method of execution that presents a substantially lower risk of pain and suffering than the current [Alabama Department of Corrections] protocol described above.

Motion for Leave to File Third Amended Complaint, Exhibit A at 43–44, No. 2:11-CV-438-WKW-TFM (M.D. Ala. Aug. 25, 2015), ECF No. 256-1 (footnotes omitted).