

Uncertainty & the Eighth Amendment

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UNCERTAINTY & THE EIGHTH AMENDMENT

ABSTRACT

*Despite significant controversy over recent botched executions, the Supreme Court recently affirmed in *Glossip v. Gross* that lethal injection executions would not run afoul of the Eighth Amendment unless they pose a “substantial risk of serious harm” and further held that there must be an alternative that does not pose this risk. This is a high bar that will likely limit future challenges. The task before the Court was a difficult one – it is not easy to determine how to apply the Eighth Amendment prohibition on cruel and unusual punishment to a method that poses uncertain risks of harm. This Article is the first to conduct a rigorous analysis of the risk standards used in Eighth Amendment cases in comparison to how risks are managed in other domains (such as biomedical research). In other domains, particularly that of research ethics and regulation, scholars have contributed a great deal to our understanding of risks and uncertainty and how they should be managed. I argue that the standard adopted by the Court is much more tolerant of risk than standards commonly used in biomedical research. Even if a higher standard is appropriate in the capital punishment context, based on how risk standards are operationalized in other domains, the majority opinion misapplied its own standard in *Glossip*. The Court’s unwillingness to grapple honestly with the uncertain risks of current lethal injection protocols leaves hard questions involving lethal injection unresolved. These questions will be dealt with at the state level in ways that may lead to unpredictable and piecemeal abolition of the death penalty.*

UNCERTAINTY & THE EIGHTH AMENDMENT

Table of Contents

Introduction3
I. Background.....7
 A. History of execution methods7
 B. Executions and the Eighth amendment.....14
 1. Conditions of confinement cases16
 2. Cases on Execution Methods.....20
II. Managing Risk and Uncertainty in Other domains27
 A. Public health regulation of toxic substances28
 B. Regulation of biomedical research30
 1. Two components of risk30
 2. High degrees and likelihoods of harm are not permitted in
 biomedical research.....32
 3. “A substantial risk of serious harm” would permit an order of
 magnitude less harm in research than the Court has allowed in
 executions by lethal injection.....34
III. Critique of the Analysis of Alternative Methods in *Glossip*35
IV. Objections.....40
Conclusion.....43

UNCERTAINTY & THE EIGHTH AMENDMENT

INTRODUCTION

In 2014, four executions by lethal injection received considerable national attention because they did not go according to plan.¹ A typical execution by lethal injection should be painless, with the inmate first being anesthetized and rendered unconscious before lethal medication to cause death in fifteen to thirty minutes.² By contrast, inmates writhed, spoke, and moved throughout these executions gone awry.³ In one case, an inmate appeared to suffer greatly and died of a heart attack approximately two hours after the drugs were started, even though he had received fifteen times the amount of medication than was planned.⁴ Yet many executions do take place without incident and raise minimal concern that the inmates experience excessive pain and suffering before death. This raises an important question: When does the *risk* of botched executions by lethal injection constitute cruel and unusual punishment?

The Supreme Court recently held in *Glossip v. Gross* that a lethal injection protocol violates the Eighth Amendment only if it carries a “substantial risk of serious harm” and there is an alternative approach that does not pose this risk.⁵ The Court applied this standard to a lethal

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¹ Ben Crair, *2014 Is Already the Worst Year in the History of Lethal Injection: Another day, another problematic execution*, NEW REPUBLIC (July 24, 2014).

² Executions involving a single drug, pentobarbital, could in theory be much shorter (on the order of 3-5 minutes).

³ Helen Pow, *Execution Horribly Botched in Oklahoma*, Daily Mail (Apr. 29, 2014), <http://www.dailymail.co.uk/news/article-2615631/Oklahoma-prepares-execute-2-inmates.html>; Fernanda Santos & John Schwartz, *A Prolonged Execution in Arizona Leads to a Temporary Halt*, N.Y. Times (July 24, 2014), http://www.nytimes.com/2014/07/25/us/a-prolonged-execution-in-arizona-leads-to-a-temporary-halt.html?_r=0; Ohio to Increase Lethal Injection Drug Dosages After Execution Leads to Lawsuit, The Guardian (Apr. 28, 2014, 5:45 PM), <http://www.theguardian.com/world/2014/apr/28/ohio-increase-lethal-drug-dosages>.

⁴ Greg Botelho & Dana Ford, *Oklahoma Stops Execution After Botching Drug Delivery; Inmate Dies*, CNN (Oct. 9, 2014, 2:55 PM), <http://www.cnn.com/2014/04/29/us/oklahoma-botched-execution/index.html>. Note that this execution involved the use of a relatively novel two drug combination that some states have adopted because of pressures discussed below.

⁵ *Glossip v. Gross*, 135 S. Ct. 2726, 192 L. Ed. 2d 761, at *774 (2015).

UNCERTAINTY & THE EIGHTH AMENDMENT

injection protocol that was used in three of the four botched executions in 2014, and found that the lethal injection protocol at issue did not violate the Eighth Amendment.⁶ The *Glossip* court struggled with difficult questions about risk and uncertainty in the face of limited evidence about the drugs currently used in executions by lethal injection. Due to drug embargoes and shortages, and difficulties in involving trained medical personnel in executions, states have recently turned to using novel drugs in doses and combinations that are very different than what was done in previous executions and how these drugs are used in medical practice.⁷

Lethal injection is the main method of execution used in the United States.⁸ Though many assume lethal injection is used because it is more humane than the alternatives, the historical record suggests that other motivations, such as cost, were at least as powerful. Moreover, one study estimates that more than seven percent of all lethal injection executions have been botched, which is more than double the rate of error of any other method of execution.⁹ In a previous Article, I argued that it is valuable to examine lethal injection protocols and the experimentation involved through the lens of biomedical research ethics and regulation.¹⁰ Here I undertake a deeper examination of the concerns around lethal injections executions and zero in on the questions about risk and uncertainty.¹¹

In this Article, I argue that insights from the literature on the regulation of risk, particularly in the context of biomedical research, are invaluable in examining executions by lethal injection. Biomedical research is characterized by uncertainty. It is conducted to gather new knowledge about whether new drugs and devices are safe and effective, so it is an activity that requires exposing individuals to uncertain risk of harm. There is a vast amount of scholarship on risk and uncertainty on human health and research regulation which can provide greater analytical rigor to examine the issues troubling lethal injection today. I contend this offers a better way to understand both why these botches occur with such frequency and how to manage risk and uncertainty in the future.

⁶ *Id.*

⁷ Seema K. Shah, *Experimental Execution*, 90 WASH. L. REV. 147, 147-148 (2015).

⁸ Deborah W. Denno, *Lethal Injection Chaos Post-Baze*, 102 GEO. L.J. 1331, 1342-1343 (2014).

⁹ AUSTIN SARAT, GRUESOME SPECTACLES: BOTCHED EXECUTIONS AND AMERICA'S DEATH PENALTY 120, 177, Appendix A (2014).

¹⁰ See generally Seema K. Shah, *Experimental Execution*, 90 WASH. L. REV. 147 (2015).

¹¹ Note that this Article does not address arguments about uncertainty in the administration of the death penalty that may render it unconstitutional under a different type of Eighth Amendment challenge. See *Jones v. Chappell*, 31 F. Supp. 3d 1050, 1052 (C.D. Cal. 2014).

UNCERTAINTY & THE EIGHTH AMENDMENT

In particular, the literature on the ethics and regulation of biomedical research has advanced far beyond the traditional analytical approach in the legal literature and case law in terms of setting risk thresholds and quantifying those thresholds. From this follows three key insights that have relevance for Eighth Amendment jurisprudence: (a) risk has two components—degree and likelihood of harm; (b) the highest thresholds for risk tolerated in research do not involve *both* a high degree and likelihood of harm; and (c) quantifying what counts as a significant likelihood of serious harm in biomedical research would permit something like a 1/10000 chance of serious harm.

This bioethics literature can directly help inform our analysis of the Court's jurisprudence. For instance in *Glossip*, a majority of the court endorsed a standard prohibiting a "substantial risk of serious harm" or an "objectively intolerable risk of harm", and made clear that challengers to lethal injection protocols bear the burden of proof to identify a feasible, readily available alternative approach to lethal injection (i.e., it is not sufficient to propose other alternative methods of execution).¹² I argue that majority's approach, while largely problematic, had one important virtue supported by the literature. It explicitly recognized the analytically important point that risk has two components—namely, chance and degree of harm.¹³ To perform a rigorous assessment of a given lethal injection protocol, it is necessary to recognize these two distinct components of risk.

In many other respects, however, I argue that the majority's position was problematic. Applying the risk/alternative standard, the *Glossip* court found that Oklahoma's use of a drug called midazolam was constitutionally sound.¹⁴ Significantly, in three executions conducted with midazolam in 2014, witnesses reported that the inmates appeared to be aware and possibly in pain and that the executions were prolonged.¹⁵ The concern with midazolam is that it is a drug that has been approved for use in combination with other drugs in order to prevent individuals from feeling pain, and it may not be sufficient to anesthetize inmates against feeling the effects of the other drugs used to paralyze inmates and cause death.¹⁶ It is uncontested that if inmates are insufficiently anesthetized, the drugs used to cause death will result in the inmate experiencing excruciating and torturous suffering before death occurs.¹⁷

¹² *Glossip*, 192 L. Ed. 2d at *775.

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¹⁴ *Id.*

¹⁵ Shah, *supra* note 6, at 148-151.

¹⁶ *Glossip*, 192 L. Ed. 2d at *777-778.

¹⁷ *Baze*, 553 U.S. at 53 ("It is uncontested that, failing a proper dose of sodium thiopental that would render the prisoner unconscious, there is a substantial,

UNCERTAINTY & THE EIGHTH AMENDMENT

The majority's approach also raises several other concerns. The Court maximally tolerated high levels on both components of risk, without clear justification for permitting such high rates of error. Although some dissenting justices noted that alternative methods of execution, like the use of lethal gas or firing squad, may have much lower rates of error, the majority opinion also arbitrarily restricted the available alternatives that someone challenging lethal injection must propose to those other approaches to lethal injection. Furthermore, even if this standard can be justified, the majority's application of the standard to the current rate of error in executions using midazolam is poorly conducted. Their risk tolerance far exceeds what has been tolerated in prison conditions litigation as well as how scholars in research ethics and regulation have cashed out similar standards used in research. Both the type and chance of harm observed with protocols using midazolam is far above what a "substantial risk of serious harm" would be understood to permit in the context of research.

In writing this Article, I recognize that these arguments are unlikely to persuade those who are staunch supporters of retributivist justifications for capital punishment, or those who firmly believe the death penalty should be abolished and worry that any discussion of reform might undermine that aim. Nevertheless, many who are concerned about the recent and troubling occurrences of botched executions are unlikely to be reassured by the Court's "nothing to see here" approach to regulating executions by lethal injection and may well wonder if there is any alternative. States deciding what approaches to take to execution by lethal injection or whether to switch to a new method altogether to avoid negative publicity or their own uneasiness about conducting botched executions may also be unsatisfied with the *Glossip* opinion. This Article not only demonstrates how states might regulate risk more carefully in the future, it also argues that the *Glossip* ruling punted on important and unresolved questions, and attempts argues that the likely effect of the ruling is that future lethal injection battles will continue at the state level. States will then have to determine whether, given difficulties obtaining drugs, concerns about the cost of the death penalty, questions about whether death sentences are imposed fairly or accurately, significant uncertainty about whether inmates sentenced to death will ever be executed, and a host of other challenges, it is worth it to maintain capital punishment.

In Part I of the Article, I provide some background on capital punishment, and examine execution methods and prison conditions

constitutionally unacceptable risk of suffocation from the administration of pancuronium bromide and pain from the injection of potassium chloride.").

UNCERTAINTY & THE EIGHTH AMENDMENT

litigation to trace how risk standards have been developed for lethal injection executions. Part II develops insights from existing literature on about how to manage risk and uncertainty. Part III critiques the risk standard chosen by the *Glossip* court because it is much higher than what is usually permitted in other contexts, and has also been misapplied to consider the rate of error in executions by lethal injection involving midazolam. In Part IV, I consider objections to these arguments, including whether there are reasons to be more or less conservative with risk tolerance in executions as opposed to research. I also explain the value of this inquiry despite the robust, ongoing debates over the death penalty and the trend some characterize as moving towards abolition of capital punishment. I conclude by suggesting that the likely outcome after *Glossip* is that the tough questions over risk and uncertainty surrounding the death penalty and execution by lethal injection will not go away, but that lethal injection will be more fiercely contested at the state level on this and other grounds in a manner that may to the slow death of the death penalty in the United States.

I. BACKGROUND

A. History of execution methods

From the founding of our country until the late 19th century, hanging was the official method of execution.¹⁸ However, hanging could cause slow, evidently painful deaths, and the outcomes varied depending on factors like weather, the height of the drop, and even the degree of tension in the neck muscles of the person being hanged.¹⁹ As concerns arose, states began searching for a “clean, clinical, undisturbing method of execution.”²⁰ Many states first tried to improve the outcomes and minimize the variability of hanging by using a device known as the “upright jerker.” The upright jerker added extra ropes and weights designed to drop down and lift the inmate into the air to have his or her neck broken.²¹ The upright jerker was subject to human error, particularly because many executioners did not have much experience with the machine, so several executions were botched and this approach was ultimately abandoned.²² In the 1870s, states attempted to drop inmates from greater heights, but this led to several instances of gruesome spectacles involving decapitation, and more

¹⁸ STUART BANNER, *THE DEATH PENALTY: AN AMERICAN HISTORY* 168 (2002).

¹⁹ *Id.* at 170-171.

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at 172.

UNCERTAINTY & THE EIGHTH AMENDMENT

discomfort among the executioners themselves.²³ In 1880, the *New York Times*, prompted by the concern that hanging was an ineffective way to cause death and reports that some hanged individuals had later been revived, proposed the use of the guillotine as an alternative.²⁴

States soon began exploring other methods of execution altogether. In the late nineteenth century, electricity was embraced as a new technology with a variety of uses, and it was used to kill livestock in a more humane manner in England.²⁵ In New York state, the governor was inspired by the possibility of using electricity in executions and declared that “[t]he present mode of executing criminals by hanging has come down to us from the dark ages, and it may well be questioned whether the science of the present day cannot provide a means for taking the life of such as are condemned to die in a less barbarous manner. I commend this suggestion to the consideration of the legislature.”²⁶ The New York legislature subsequently appointed a commission to study methods of execution in 1886.²⁷ In its final report, issued in 1888, the Commission rejected many methods of execution and endorsed electricity as the best approach.²⁸ New York state quickly switched to adopting electrocution,²⁹ and fifteen states followed in the period from 1888-1913.³⁰ Eleven more states and the District of Columbia followed suit by the middle of the twentieth century.³¹

In 1890, the Supreme Court considered whether electrocution involved cruel and unusual punishment in the case of *In re Kemmler*.³² The Court affirmed the judgment of the state courts that electrocution did not offend the Eighth Amendment, determining that even though it was clearly unusual because it was new, it was not cruel and was intended to

²³ *Id.* at 173. Banner explains that executioners tried to develop ways that the inmates themselves initiated the execution as a result. *Id.* at 174.

²⁴ *New York Times*, 19 April 1880 (“It is a strong point, among many, in favor of the guillotine, that it makes no failures, but is an absolutely certain and rapid agent of death.”).

²⁵ *Id.* at 178.

²⁶ *In re Kemmler*, 136 U.S. 436, 444 (U.S. 1890).

²⁷ Banner, *supra* note 16 at 178-179. The Commission rejected the guillotine for some interesting reasons: concern about “the profuse effusion of blood which it involves” that would shock witnesses for no good reason, and the association “with the bloody scenes of the French Revolution” that Americans would find repugnant. *Id.* at 180.

²⁸ *Id.* at 179-180.

²⁹ *Id.*

³⁰ *Id.* at 170-171.

³¹ *Id.*

³² *Kemmler*, 136 U.S. at 447.

UNCERTAINTY & THE EIGHTH AMENDMENT

be a more humane method of execution.³³ Yet from the start, electrocution was more gruesome than had been expected. In the first electrocution conducted, William Kemmler was given a lower dose of electricity than was planned, and after seventeen seconds of being electrocuted, still appeared to be breathing, so he was re-electrocuted until his flesh began to burn.³⁴ Several electrocutions subsequently went much more smoothly, and although there was occasional concern raised that inmates might not be killed and might revive on their own if an electrocution was not done properly, electrocution became more widely accepted over time.³⁵

Perhaps as a result of these concerns, some states moved away from electrocution and began to prefer lethal gas as an execution method.³⁶ The gas chamber was first adopted by Nevada in 1921, when the deputy attorney general persuaded others to move from hanging and firing squad (the two methods on the books in the state at that time) to adopting the gas chamber.³⁷ It was taken up by ten more states by 1955.³⁸ The gas chamber evoked strong public reaction, however, that it was somehow sinister or creepy.³⁹ Lethal gas had caused many deaths in battle in World War I.⁴⁰ In a case before the Nevada Supreme Court, the court acknowledged but ultimately minimized this concern as follows:

The revulsion on the part of many to the idea of execution by the administration of gas is due to an erroneous impression. The average person looks upon the use of gas with horror, because of the experiences incident to the late war. They forget that there are many kinds of gas, ranging from the harmless non-poisonous tear gas, which may be used for the quelling of a mob, and the ordinary illuminating gas, which may produce painless death, to the highly poisonous gas which sears and destroys everything with which it comes in contact.... We must presume that the officials intrusted with the infliction of the death penalty by the use of gas will

³³*Id.*

³⁴ *Id.* at 186.

³⁵ *Id.* at 190-191.

³⁶ Deborah W. Denno, *When Legislatures Delegate Death*, 63 OHIO ST. L. J. 63, 83 (2002).

³⁷ Banner, *supra* note 16 at 196.

³⁸ *Id.* Banner argues that one consequence of the search for more humane methods of execution is that executions moved from being public events conducted to maximize the deterrent effect to private events conducted indoors by specialists before a small group of people. *Id.* at 170.

³⁹ *Id.* at 198.

⁴⁰ *Id.* at 199.

UNCERTAINTY & THE EIGHTH AMENDMENT

administer a gas which will produce no such results, and will carefully avoid inflicting cruel punishment.⁴¹

The gas chamber was, however, also associated with mishaps. Some executions seemed to cause pain such as when inmates gasped and choked for extended periods of time before becoming unconscious.⁴² At times, there were serious concerns that the gas had leaked and might have endangered the spectators.⁴³ The gas chamber was also a means of mass murder used by the Nazis in concentration camps during World War II,⁴⁴ leaving a disturbing association in the minds of the public with this execution method. One scholar has claimed that, by 1997, “state legislatures may have reached a significant degree of national consensus to find both lethal gas and electrocution unconstitutional.”⁴⁵ Yet only the Ninth Circuit explicitly found the gas chamber to be unconstitutional,⁴⁶ and Oklahoma recently revived the gas chamber in response to challenges to lethal injection.⁴⁷

The firing squad has had an important place in our nation’s history as well, but only two states have officially used it as an option: Utah and Nevada.⁴⁸ The method involves placing a target over the condemned individual’s heart and having several shooters aim and fire at the target (with some shooters’ guns loaded with bullets and others’ guns with

⁴¹ State v. Gee Jon, 46 Nev. 418, 436-437 (Nev. 1923).

⁴² Banner, *supra* note 16 at 199.

⁴³ *Id.* at 200-201.

⁴⁴ Benjamin Mason Meier, *International Criminal Prosecution of Physicians: A Critique of Professors Annas and Grodin's Proposed International Medical Tribunal*, 30 AM. J. L. AND MED. 419, 422 (2004).

⁴⁵ Deborah W. Denno, *Getting to Death: Are Executions Constitutional?*, 82 IOWA L. REV. 319, 371 (1997).

⁴⁶ *Fierro v. Gomez*, 77 F.3d 301, 309 (9th Cir. 1996). While the 9th did find the gas chamber unconstitutional, the U.S. Supreme Court granted certiorari on the issue. While the case was pending, however, California switched from lethal gas to lethal injection, so the Supreme Court ultimately vacated the case. *See Fierro v. Gomez*, 519 U.S. 918 (1996).

⁴⁷ Ralph Ellis, *Oklahoma approves nitrogen gas as backup execution method*, CNN (April 17, 2015), <http://www.cnn.com/2015/04/17/us/oklahoma-executions/index.html>.

⁴⁸ Banner, *supra* note 16, at 203. In these states, firing squad was “originally a consequence of the Mormon doctrine of blood atonement, the concept that some sins are so heinous that the offender can atone only by literally shedding his blood.” *Id.* Oklahoma also is authorized to use the firing squad if lethal injection and electrocution are found to be unconstitutional. *See also* Death Penalty Information Center, Authorized methods, available at: <http://www.deathpenaltyinfo.org/methods-execution?scid=8&did=245#state>.

UNCERTAINTY & THE EIGHTH AMENDMENT

blanks).⁴⁹ Some have criticized the firing squad based on the concern that it lacks dignity and mutilates the body of the condemned.⁵⁰ Perhaps the most famous execution by firing squad involved Gary Gilmore, who was the first person to be executed when executions resumed in 1977 after a 5 year hiatus caused by *Furman v. Georgia*.⁵¹ Gilmore had attempted suicide twice while imprisoned and wanted his execution to be over quickly.⁵² He was allowed to choose between execution by hanging or by firing squad.⁵³ Believing firing squad would be more humane, he elected to be executed in that manner.⁵⁴

No state has found firing squad to be unconstitutional, and the U.S. Supreme Court upheld the constitutionality of the firing squad as a method of execution in *Wilkerson v. Utah*, relying on legal authorities that made clear the fact that firing squad had long been used as a method of execution, particularly in the military, and was consistent with the Eighth Amendment.⁵⁵ When it switched to the gas chamber, however, Nevada abandoned the firing squad, and no longer has it authorized in its execution statute.⁵⁶

In 1977, lethal injection came onto the scene as a potential method of execution.⁵⁷ Many assume lethal injection was adopted “because it is universally recognized as the most humane method of execution, least apt to cause unnecessary pain.”⁵⁸ Nevertheless, scholars have noted that another significant factor in its adoption was the fact that developing new lethal injection protocols was significantly cheaper than repairing or instating other methods.⁵⁹ The state of Oklahoma first adopted a lethal

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ BBC News, On this day: 1977: Gilmore executed by firing squad, http://news.bbc.co.uk/onthisday/hi/dates/stories/january/17/newsid_2530000/2530413.stm.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Wilkerson v. Utah*, 99 U.S. 130, 134-135 (U.S. 1879).

⁵⁶ *Banner*, *supra* note 16, at 203.

⁵⁷ *State v. Mata*, 275 Neb. 1, 43 (Neb. 2008).

⁵⁸ *State v. Webb*, 252 Conn. 128, 145, 750 A.2d at 457 (2002).

⁵⁹ Fernando J. Gaitan, Jr., *Challenges Facing Society in the Implementation of the Death Penalty*, 35 *FORDHAM URB. L.J.* 763, 770 (2008) (discussing the role of economics in the decision by Oklahoma legislators to adopt lethal injection, as the state’s electric chair required \$62,000 in repairs and the cost of a new gas chamber was projected at \$300,000, while lethal injection was estimated to cost only \$70 to administer); *Banner*, *supra* note 16, at 296 (explaining that after the decade-long hiatus in executions, “[t]o resume executions would require buying new equipment even if

UNCERTAINTY & THE EIGHTH AMENDMENT

injection protocol in 1977.⁶⁰ Jay Chapman, the state's medical examiner, had been asked by a state legislator to develop the protocol. Though he initially felt he lacked the relevant expertise,⁶¹ Dr. Chapman nevertheless proposed a lethal injection protocol with an "ultra-short-acting barbiturate in combination with a chemical paralytic,"⁶² and upon further consideration, added potassium chloride to the mix.

In 2008, there were 38 jurisdictions⁶³ with lethal injection, and they all used a version of Chapman's suggested approach.⁶⁴ More specifically, they first administered sodium thiopental to anesthetize the inmate, then pancuronium bromide to paralyze the inmate,⁶⁵ and then potassium chloride to cause the inmate's death. The primary risk associated with this cocktail of drugs is that if the anesthetic is incorrectly administered or ineffective for some reason, the inmate will experience excruciating suffering before death.⁶⁶

Although lethal injection is the primary method of execution in states that retain the death penalty, several states have alternative methods of execution written into their statutes. For example, Florida's capital punishment statute allows an inmate to select electrocution instead of lethal injection,⁶⁷ Missouri provides the alternative of a gas chamber,⁶⁸ and

a state retained the method of execution it had used before *Furman*...And from the perspective of the state, one great benefit of lethal injection is that it was cheap. Unlike gas or electrocution, it did not require any specialized equipment."); see also Deborah W. Denno, *The Lethal Injection Quandary: How Medicine Has Dismantled the Death Penalty*, 76 Fordham L. Rev. 49, 71 (2007).

⁶⁰ OKLA. DEP'T OF CORR. OKLAHOMA POLICY STATEMENT NO. P-090900, PROCEDURES FOR CARRYING OUT THE DEATH SENTENCE (1977) (on file with author).

⁶¹ Denno, *supra* note 58, at 65-66.

⁶² *Id.* at 66.

⁶³ Tracy J. Snell, U.S. Department of Justice, Bureau of Justice Statistics, Capital Punishment, 2008 – Statistical Tables, <http://www.bjs.gov/content/pub/pdf/cp08st.pdf>.

⁶⁴ Seema K. Shah, *How Lethal Injection Reform Constitutes Impermissible Research on Prisoners*, 45 AM. CRIM. L. REV. 1101, 1105 (2008).

⁶⁵ *Baze v. Rees*, 553 U.S. 35, 49 (U.S. 2008); Denno, *Lethal Injection Quandary*, *supra* note 60, at 55.

⁶⁶ *Baze v. Rees*, 553 U.S. 35, 53 (U.S. 2008) ("It is uncontested that, failing a proper dose of sodium thiopental that would render the prisoner unconscious, there is a substantial, constitutionally unacceptable risk of suffocation from the administration of pancuronium bromide and pain from the injection of potassium chloride.").

⁶⁷ Fla. Stat. tit. XLVII, § 922.105. See also South Carolina Code § 24-3-530 (1976) ("A person convicted of a capital crime and having imposed upon him the sentence of death shall suffer the penalty by electrocution or, at the election of the person, lethal injection under the direction of the Director of the Department of

UNCERTAINTY & THE EIGHTH AMENDMENT

California's penal code provides that persons sentenced to death can choose between lethal injection and lethal gas and that if either method is held invalid, the other method shall be used.⁶⁹ In twenty-one states, however, lethal injection is the only execution method on the books.⁷⁰ Recently, several states have made efforts to revive older methods of execution in the wake of controversy over lethal injections.⁷¹ Some states are subject to court rulings determining that certain methods are unconstitutional, however, so not all options are available in every

Corrections. The election for death by electrocution or lethal injection must be made in writing fourteen days before the execution date or it is waived. If the person waives the right of election, then the penalty must be administered by lethal injection."); VA Code Ann. § 53.1-234 ("The Director, or the assistants appointed by him, shall at the time named in the sentence, unless a suspension of execution is ordered, cause the prisoner under sentence of death to be electrocuted or injected with a lethal substance, until he is dead. The method of execution shall be chosen by the prisoner. In the event the prisoner refuses to make a choice at least fifteen days prior to the scheduled execution, the method of execution shall be by lethal injection. Execution by lethal injection shall be permitted in accordance with procedures developed by the Department."); Wash. Code § 10.95.180 (The punishment of death shall be supervised by the superintendent of the penitentiary and shall be inflicted by intravenous injection of a substance or substances in a lethal quantity sufficient to cause death and until the defendant is dead, or, at the election of the defendant, by hanging by the neck until the defendant is dead. In any case, death shall be pronounced by a licensed physician."); Utah Code Ann. § 77-18-5.5 (2012) (allowing some inmates to opt for death by firing squad); Tenn. Code Ann. § 40-23-114 (2014) (noting that if other methods become unavailable for some reason, an inmate no longer has the right to choose and "all persons sentenced to death for a capital crime shall be executed by any constitutional method of execution").

⁶⁸ Mo. Rev. Stat. tit. 37, ch. 546.720. In an analysis of different methods of execution conducted in the mid-twentieth century, Great Britain's Royal Commission on Capital Punishment dismissed lethal gas as an option because of the "highly unpleasant historical associations" with lethal gas that might render this method of execution unpalatable to the public. ROYAL COMMISSION ON CAPITAL PUNISHMENT, REPORT, 1949-1953, at 257 (U.K.).

⁶⁹ Cal. Penal Code 3604.

⁷⁰ Deborah W. Denno, *Lethal Injection Chaos Post-Baze*, 102 GEO. L.J. 1331, 1342-43 (2014)(current information as of June 2014). See, e.g., Ky. Rev. Stat. tit. XL, ch. 431.220 ("every death sentence shall be executed by continuous intravenous injection of a substance or combination of substances sufficient to cause death").

⁷¹ David Stout, *The Tennessee Senate Has Backed a Bill to Reinstate the Electric Chair*, TIME, April 10, 2014.

UNCERTAINTY & THE EIGHTH AMENDMENT

jurisdiction.⁷² Yet the Supreme Court has never invalidated a method of execution.⁷³

B. Executions and the Eighth Amendment

The Eighth Amendment to the U.S. Constitution prohibits the infliction of “cruel and unusual punishments.”⁷⁴ After the cruel and unusual punishments clause was adopted as part of the Bill of Rights, it was widely accepted that it prohibited “certain methods of punishments,” and was interpreted by state and federal jurists to prohibit torture and barbaric methods of execution.⁷⁵ Punishments that are clearly cruel and

⁷² See, e.g., *State v. Mata*, 275 Neb. 1, at 66 (2008) (ruling that the four jolt method of electrocution violated state law); *Dawson v. State*, 274 Ga. 327, 334-335 (2001) (“We cannot ignore the cruelty inherent in punishments that unnecessarily mutilate or disfigure the condemned prisoner's body or the unusualness that mutilation creates in light of viable alternatives which minimize or eliminate the pain and/or mutilation.... [T]he bodies of condemned prisoners in Georgia are mutilated during the electrocution process....Based on this evidence of the electrocution process and comparing that process with lethal injection, a method of execution the Legislature has now made available in this State, we conclude that death by electrocution involves more than the ‘mere extinguishment of life,’ and inflicts purposeless physical violence and needless mutilation that makes no measurable contribution to accepted goals of punishment. Accordingly, we hold that death by electrocution, with its specter of excruciating pain and its certainty of cooked brains and blistered bodies, violates the prohibition against cruel and unusual punishment in Art. I, Sec. I, Par. XVII of the Georgia Constitution”); *Fierro v. Gomez*, 77 F.3d 301, 309 (9th Cir. 1996) (ruling that gas chamber executions violate the Eighth Amendment); see also Deborah W. Denno, *When Legislatures Delegate Death*, *Ohio State Law Journal* at 89 (noting that prison officials in Ohio were concerned about the potential use of the state’s 104 year old electric chair and its reliability, and they asked the Ohio Legislature to abolish the use of electrocution. The Ohio Legislature did so with the support of the governor through an emergency bill) (citing Am. H.B. 362, 124th Gen. Assem., Reg. Sess. (Ohio 2001). *But see Provenzano v. Moore*, 744 So.2d 413, 415 (Fla. 1999) (“The record in this case reveals abundant evidence that execution by electrocution renders an inmate instantaneously unconscious, thereby making it impossible to feel pain. The record also contains evidence that the electric chair is and has been functioning properly and that the electrical circuitry is being maintained.”).

⁷³ *Baze*, 553 U.S. at 48; see also *Francis v. Resweber*, 329 U.S. 459, 463 (1947)(determining the firing squad does not violate the Eighth Amendment); *In re Kemmler*, 136 U.S. at 449 (implicitly indicating that electrocution does not offend the Eighth Amendment).

⁷⁴ U.S. CONST. amend. VIII.

⁷⁵ Anthony F. Granucci, *Nor Cruel and Unusual Punishments Inflicted: The Original Meaning*, 57 CAL. L. REV. 839, 842 (1969). For instance, the U.S. Supreme Court has

UNCERTAINTY & THE EIGHTH AMENDMENT

unusual include “burning at the stake, crucifixion, [and] breaking on the wheel.”⁷⁶ The U.S. Supreme Court first analyzed the constitutionality of methods of execution by comparing them to punishments such as these that were clearly beyond the pale,⁷⁷ but has since explained that executions involve cruel and unusual punishment when they involve “something more than the mere extinguishment of life.”⁷⁸ The Court has also embraced as an ideal of execution that “the execution shall be so instantaneous and substantially painless that the punishment shall be reduced, as nearly as possible, to no more than that of death itself.”⁷⁹

The Eighth Amendment has often been invoked to prohibit the imposition of the death penalty and other punishments when they are far out of proportion to the crimes committed.⁸⁰ Additionally, the cruel and unusual punishment clause “draw[s] its meaning from the evolving standards of decency that mark the progress of a maturing society.”⁸¹ Cases invoking our evolving standards of decency have typically determined that certain classes of offenders should not be eligible for the death penalty, such as adults with limited mental capacity,⁸² juveniles,⁸³ and individuals who commit crimes that do not result in the death of the victim.⁸⁴ These cases, of course, rely on the notion that the imposition of capital punishment for those offenses is a violation of the Eighth Amendment. A different and more complicated issue is when a *risk* of harm from a particular method of capital punishment is significant enough to violate the Eighth Amendment.

indicated that “it is safe to affirm that punishments of torture...and all others in the same line of unnecessary cruelty, are forbidden.” See *Wilkerson*, 99 U.S. at 136.

⁷⁶ *Kemmler*, 136 U.S. at 446-447,

⁷⁷ *Estelle v. Gamble*, 429 U.S. 97, 102 (1976) (citing *Wilkerson v. Utah*, 99 U.S. 130 (1879) & *In re Kemmler*, 136 U.S. 436 (1890)).

⁷⁸ *Kemmler*, 136 U.S. at 436.

⁷⁹ *Resweber*, 329 U.S. at 463 (plurality opinion).

⁸⁰ *Robinson v. California*, 370 U.S. 660, 666-667 (1962).

⁸¹ *Trop v. Dulles*, 356 U.S. 86, 100-01 (1958). Note, however, Justice Scalia’s remarks in *Glossip* suggesting *Trop* was wrongly decided. *Glossip v. Gross*, 192 L. Ed. 2d at *787 (“If we were to travel down the path that Justice Breyer sets out for us and once again consider the constitutionality of the death penalty, I would ask that counsel also brief whether our cases that have abandoned the historical understanding of the Eighth Amendment, beginning with *Trop*, should be overruled. That case has caused more mischief to our jurisprudence, to our federal system, and to our society than any other that comes to mind.”).

⁸² *Atkins v. Virginia*, 536 U.S. 304, 320 (2002).

⁸³ *Roper v. Simmons*, 543 U.S. 551, 575 (2005).

⁸⁴ *Kennedy v. Louisiana*, 554 U.S. 407, 438 (2008); *Enmund v. Florida*, 458 U.S. 782 (1982); *Coker v. Georgia*, 433 U.S. 584 (1977).

UNCERTAINTY & THE EIGHTH AMENDMENT

The issue of whether a particular punishment poses a *risk* of harm that violates the cruel and unusual punishments clause has primarily been addressed in two types of cases: (1) conditions of confinement cases, and (2) execution methods cases. Each of these will be discussed in turn below.

1. Conditions of confinement cases

In conditions of confinement cases, prison officials violate the Eighth Amendment when there is a substantial risk of serious harm to a prisoner *and* officials were deliberately indifferent to that risk.⁸⁵ Courts have also used language to describe this standard as follows: “unreasonable risk [of] significant harm,” or conditions that cause “unnecessary suffering.”⁸⁶ The Eighth Circuit has distinguished conditions of confinement claims from capital punishment cases by explaining that conditions of confinement cases have two prongs: the petitioner must establish that prison officials have displayed deliberate indifference to a risk before an Eighth Amendment violation is found and that there was a substantial risk of serious harm as a result, whereas petitioners in execution cases merely have to demonstrate that there is a substantial risk of serious harm.⁸⁷ Nevertheless, there are several conditions of confinement cases that elucidate how the substantial risk of serious harm prong (or the “objective prong,” in this line of cases) should be applied, some of which involve issues about medical treatment. Looking more closely at these cases may shed light on how this prong should be applied in the lethal injection context.

The next section will demonstrate that courts have found a number of different injuries or potential harms are of sufficiently serious *magnitude* that prison officials who were deliberately indifferent to them violated the Eighth Amendment. The cases are less helpful, however, on the question of when the *chance* of harm is substantial enough to constitute a violation.⁸⁸

a. Magnitude of harm

⁸⁵ Farmer v. Brennan, 511 U.S. 825, 837-840 (1994).

⁸⁶ Brittany Glidden, Necessary Suffering?: Weighing Government and Prisoner Interests in Determining What Is Cruel and Unusual, 49 Am. Crim. L. Rev. 1815, 1823-24 (2012).

⁸⁷ State v. Mata, 275 Neb. 1, 46 (Neb. 2008).

⁸⁸ See, e.g., Farmer v. Brennan, 511 U.S. at 834 n.3 (“At what point a risk of inmate assault becomes sufficiently substantial for Eighth Amendment purposes is a question this case does not present, and we do not address it.”)

UNCERTAINTY & THE EIGHTH AMENDMENT

With regard to the magnitude of harm, the Eighth Amendment is violated when there is an inappropriate response to “a condition of urgency, one that may produce death, degeneration, or extreme pain.”⁸⁹ It is clear that when prison officials do not take action against a known risk of suicide, the possibility of death from suicide is a serious enough harm to constitute an Eighth Amendment violation.⁹⁰ The risks to a transgender inmate (who identified as female) housed with male inmates, who was repeatedly raped, beaten, and infected with HIV, were also considered serious harm.⁹¹ In general, serious medical conditions (where lack of treatment would likely be considered serious harm) include those that cause “extreme pain, internal bleeding, violent cramps and periods of unconsciousness.”⁹² The pain and inconvenience associated with allowing an inmate’s teeth to degenerate to the point where they needed to be extracted was sufficiently serious to qualify a substantial risk of serious harm when the inmate was denied dental attention.⁹³ Similarly, the following have been held to constitute serious harm that satisfies the first prong of the *Farmer* test: withholding pain relievers from a cancer patient who he suffered from blisters that made it difficult to swallow food;⁹⁴ failing to treat epilepsy,⁹⁵ and not providing treatment for an infected cyst that could result in “excruciating pain.”⁹⁶ However, the failure to treat headaches, scratches, or the common cold would not constitute serious harm.⁹⁷

b. Chance of harm

Several cases have touched on the issue of whether pain and other medical problems due to lack of medical treatment posed a sufficiently *significant chance* of harm to run afoul of the Eighth Amendment, but in a limited fashion. In *Helling v. McKinney*, the Court considered whether a prisoner’s exposure to secondhand smoke from a cellmate who smoked

⁸⁹ *Hathaway v. Coughlin*, 37 F.3d 63, 66 (2d Cir. N.Y. 1994) (quoting *Nance v. Kelly*, 912 F.2d 605, 607 (2d Cir. 1990) (Pratt, J., dissenting)).

⁹⁰ *Collins v. Seeman*, 462 F.3d 757, 760 (2006); *Sanville v. McCaughtry*, 266 F.3d 724, 733 (2001) (“It goes without saying that ‘suicide is a serious harm.’”).

⁹¹ *Farmer v. Brennan*, 511 U.S. at 849.

⁹² *Reed v. McBride*, 853 F.3d 849, 854 (7th Cir. 1999).

⁹³ *Chance v. Armstrong*, 143 F.3d 698, 702 (2d Cir. 1998).

⁹⁴ *Ralston v. McGovern*, 167 F.3d 1160, 1161-62 (7th Cir. 1999).

⁹⁵ *Hudson v. McHugh*, 148 F.3d 859, 863 (7th Cir. 1998).

⁹⁶ *Gutierrez v. Peters*, 111 F.3d 1364, 1373 (7th Cir.).

⁹⁷ *Cooper v. Casey*, 97 F.3d 914, 916 (7th Cir. 1996); *Gibson v. McEvers*, 631 F.2d 95 (7th Cir. 1980).

UNCERTAINTY & THE EIGHTH AMENDMENT

cigarettes violated the Eighth Amendment.⁹⁸ Although the dissent argued that the Eighth Amendment does not protect against a risk of injury,⁹⁹ the majority clarified that Eighth Amendment claims can be based on possible future and present harm to health.¹⁰⁰ Nevertheless, in a case where an inmate failed to present evidence that not receiving HIV medication for several months led to concrete harm, the Second Circuit held that “the absence of present physical injury will often be probative in assessing the risk of future harm.”¹⁰¹ Some courts have also held that to establish substantial risk from denial of medical treatment, the medical need has to be “so obvious that even a lay person would easily recognize the necessity for a doctor’s attention.”¹⁰²

In *Estelle v. Gamble*, the court considered whether the failure to provide medical treatment (such as x-rays or other diagnostic techniques) to an inmate suffering from back pain violated the Eighth Amendment.¹⁰³ The Court noted that in some cases, failure to provide medical treatment “may actually produce physical ‘torture or a lingering death,’....In less serious cases, denial of medical care may result in pain and suffering which no one suggests would serve any penological purpose.”¹⁰⁴ In *Estelle*, however, the Court held that the fact that the inmate had 17 different doctor’s visits over the course of 3 weeks showed that prison officials did not display deliberate indifference towards his medical condition.¹⁰⁵ The court in *Westlake v. Lucas* held that when prison staff provided an inmate with mild antacids to treat an ulcer that was bleeding failed to provide him with other medical care for what a condition that was clearly life-threatening, the staff violated the Eighth Amendment.¹⁰⁶ In *Erickson v. Pardus*, prisoner with Hepatitis C who was being punished by having to wait eighteen months for treatment, even though he met the department’s standards for receiving treatment, had a valid Eighth Amendment claim, because the risks of not receiving treatment were clear and well-known.¹⁰⁷ The Court’s analysis of the risk in this case was limited to the recognition that the inmate was in “imminent danger” and would suffer irreparable

⁹⁸ 509 U.S. 25, 27 (1993).

⁹⁹ *Id.* at 37 (Thomas, J., dissenting).

¹⁰⁰ *Id.* at 33 (explaining that prison officials may not ignore medical conditions that are “very likely to cause serious illness and needless suffering” in the future simply because the prisoner has “no serious current symptoms.”).

¹⁰¹ *Smith v. Carpenter*, 316 F.3d 178, 188-89 (2d Cir. 2003).

¹⁰² *Ramos v. Lamm*, 639 F.2d 559, 575 (10th Cir.1980).

¹⁰³ *Estelle v. Gamble*, 429 U.S. 97, 99 (1976).

¹⁰⁴ *Id.* at 103.

¹⁰⁵ *Id.* at 106.

¹⁰⁶ 537 F.2d 857, 860-61 (6th Cir. 1976).

¹⁰⁷ *Erickson v. Pardus*, 551 U. S. 89, 89-91 (2007).

UNCERTAINTY & THE EIGHTH AMENDMENT

damage if his illness went untreated.¹⁰⁸ The limited analysis in these cases of how much risk is “significant” may occur because the analysis of the chance of harm is sometimes conflated with the question of whether a prison official has been deliberately indifferent to the harm.¹⁰⁹ In some cases, courts have been confronted with harms that have already come to pass, so there was no compelling reason to assess what the level of risk was in advance—it was not hard to establish that the risk was substantial.¹¹⁰

Courts have also explained that finding an Eighth Amendment violation:

[R]equires more than a scientific and statistical inquiry into the seriousness of the potential harm and the likelihood that such injury to health will actually be caused by exposure....It also requires a court to assess whether society considers the risk that the prisoner complains of to be so grave that it violates contemporary standards of decency to expose anyone unwillingly to such a risk. In other words, the prisoner must show that the risk of which he complains is not one that today's society chooses to tolerate.¹¹¹

In cases where courts have invoked this form of risk assessment according to societal standards of decency, however, it is not entirely clear how courts should determine whether the risks inmates are faced with are outside of societal bounds. In the absence of clear guidance from courts, one promising possibility that will be discussed in section II below is that courts should compare the level and chance of risks in execution by lethal injection to the level and chance of risks that are tolerated in other domains.

In sum, these cases demonstrate that courts have not engaged in rigorous analysis of what counts as a “substantial risk” that would violate the Eighth Amendment. As Brittany Glidden has argued, courts often rely on the “obviousness” of a particular harm, even if “the harm has never actually been proven.”¹¹² She goes on to contend that “[t]he uncertainty has prompted concerns that judges are simply deciding cases based on

¹⁰⁸ *Id.* at 92.

¹⁰⁹ *Estelle*, 429 U.S. at 104.

¹¹⁰ *See, e.g., Lemire v. Dept. of Corrections & Rehabilitation*, 726 F.3d 1062, 1076 (9th Cir. 2013); *Sanville v. McCaughtry*, 266 F.3d 724, 733 (2001) (“In this case, not only was there a risk of serious harm but that harm actually materialized—[the inmate] committed suicide.”).

¹¹¹ *Helling*, 509 U.S. at 35-36; *see also Tindell v. Dep’t of Corrections*, 87 A.3d 1029, 1039 (Pa. Commw. 2014).

¹¹² Glidden, *supra* note 84, 49 *Am. Crim. L. Rev.* at 1828.

UNCERTAINTY & THE EIGHTH AMENDMENT

personal opinions. This concern is not the fault of the judge....[but t]he result is that the objective prong has become highly subjective.”¹¹³

Applying these two prongs of Eighth Amendment risk assessment to the lethal injection context, it seems clear that a risk of excruciating pain and suffering would constitute serious harm that could violate the Eighth Amendment. The more difficult question is when a chance of a harm occurring is high enough that it counts as a “substantial” risk, and courts have provided very limited guidance on the second prong of the analysis.

2. Cases on Execution Methods

Executions by lethal injection received limited scrutiny from the Supreme Court until recently, after several executions using three-drug protocols seemed to have been botched, and concerns were raised about whether some inmates were experience excruciating suffering before death.¹¹⁴ In 2008, the U.S. Supreme Court granted certiorari to *Baze v. Rees* to evaluate Kentucky’s lethal injection protocol.¹¹⁵ However, the Court was fractured and only managed to issue a plurality opinion. Although the Court found it did not have reason to consider Kentucky’s lethal injection protocol unconstitutional, the justices could agree on little else.¹¹⁶ The plurality indicated that a lethal injection protocol is not “cruel and unusual” unless it involves a “substantial risk of serious harm” or an “objectively intolerable risk of harm” and dismissed the relative risk of three-drug protocols as compared to alternatives. Justice Thomas argued for a lower standard, and contended that Eighth Amendment violations occur only when protocols are “deliberately designed to inflict pain.” Justice Ginsburg (joined in her dissent by Justice Souter) argued that the correct standard should prohibit an “untoward, readily avoidable risk of inflicting severe and unnecessary pain.”¹¹⁷

Several new developments occurred after *Baze* was decided that were not anticipated by the Court. Drug manufacturers raised ethical concerns about their drugs being used in executions, and the European Union restricted the importation of drugs to assist with executions under new torture regulations.¹¹⁸ This led to drug shortages and drug embargoes

¹¹³ *Id.*

¹¹⁴ Ben Crair, *Photos from a Botched Lethal Injection*, NEW REPUB. (May 29, 2014).

¹¹⁵ *Baze v. Rees*, 551 U.S. 1192, 1192 (2007).

¹¹⁶ *Baze v. Rees*, 553 U.S. 35, 41 (2008).

¹¹⁷ *Id.* at 52 (plurality opinion), 94 (Thomas, J. concurring), 123 (Ginsburg, J. dissenting).

¹¹⁸ See Proposal for a Regulation of the European Parliament and of the Council, COM (2014), available at <http://eur->

UNCERTAINTY & THE EIGHTH AMENDMENT

for the drugs that many states planned to use in lethal injection. There have also been increasing ethical restrictions by professional societies against their members being involved in executions. In *Cook v. FDA*, the D.C. Circuit held that the FDA had a mandatory duty to inspect drugs being imported into the country, even those that were to be used in executions by lethal injection.¹¹⁹ This in turn made it more difficult to obtain drugs for executions, so departments of corrections turned to compounding pharmacies to make the needed drugs.¹²⁰ Compounding pharmacies are pharmacies that manufacture drugs in smaller batches to fill individual prescriptions, which is a practice much less regulated than the large-scale manufacturing of drugs that pharmaceutical companies do.¹²¹ After sixty-four deaths by fungal meningitis were attributed to contaminated drugs produced at one particular compounding pharmacy,¹²² Congress heightened regulatory requirements for compounding pharmacies and, in particular, for when they have to report adverse events that are associated with use of the drugs they manufacture.¹²³ The FDA has also received new authority to inspect compounding pharmacies.¹²⁴

Given the state of flux in the drugs they can reliably obtain, states have turned to different drugs than they used in the past. Of particular note, midazolam is a drug used in four executions that did not go according to plan. Florida first used midazolam in an execution that was longer than average, in which the inmate made several movements after the warden determined he was unconscious, suggesting that he was not fully anesthetized.¹²⁵ In January 2014, Ohio used midazolam in Dennis

lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2014:0001:FIN:EN:PDF (prohibiting the exportation of drugs for use in capital punishment)).

¹¹⁹ *Cook v. FDA*, 733 F.3d 1 (D.C. Cir. 2013), at 16-17 (citing *United States ex rel. Totten v. Bombardier Corp.*, 380 F.3d 488, 494 (D.C. Cir. 2004); see also Kevin O'Hanlon, *Company recalls Nebraska's lethal injection drug*, LINCOLN J., MAY 9, 2012.

¹²⁰ Denno, *Lethal Injection Chaos Post-Baze*, *supra* note 2, at 1366.

¹²¹ Matt McCarthy, *FDA Inspections Find Unsafe Practices in Compounding Pharmacies*, 346 BRIT. MED. J. f2414, f2414 (2013).

¹²² Stephen Barlas, *New Congressional Bill Attempts to Aid Pharmacy Response to Drug Shortages*, 39 P. T. PEER-REV. J. FORMUL. MANAG. 51 (2014)..

¹²³ H.R.3204 - Drug Quality and Security Act 113th Congress (2013-2014), [http://beta.congress.gov/bill/113th-congress/house-bill/3204?q={%22search%22%3A\[%22drug+quality+and+security+act%22\]}](http://beta.congress.gov/bill/113th-congress/house-bill/3204?q={%22search%22%3A[%22drug+quality+and+security+act%22]}). It is not clear whether this law applies to the use of compounding pharmacies to produce drugs for use in executions.

¹²⁴ Paul W. Shaw, *Note and Comment: Update: Federal Legislative Response to the Controversy over Drug Compounding*, 7 J. HEALTH & LIFE SCI. L. 84, at 84 (2014).

¹²⁵ Reuters, *Florida Executes Man Using Untried Execution Drug*, DAILYMAIL (Oct. 15, 2013).

UNCERTAINTY & THE EIGHTH AMENDMENT

McGuire's execution, which lasted 26 minutes, during which time he gasped, snorted, and appeared to be struggling for breath.¹²⁶ Clayton Lockett's execution lasted for approximately two hours, with Lockett writhing and gasping throughout and ultimately dying of a heart attack.¹²⁷ Joseph Wood was executed in Arizona after having been given an incredibly high dose of midazolam, but experienced a lengthy execution and did not appear to be fully sedated throughout.¹²⁸

By 2014 (six years after *Baze* was decided), because of the fractured nature of the opinion and the many changes to lethal injection protocols, some argued that *Baze* was already moot.¹²⁹ In January 2015, the Supreme Court recognized a need to enter the fray once more and granted certiorari in the case of *Glossip v. Gross*,¹³⁰ to address three questions. First, is a three-drug protocol containing the drug midazolam constitutionally permissible, which petitioners argued was unable to reliably anesthetize inmates sufficiently to avoid severe suffering when other drugs were given to paralyze the inmate and his/her life? Second, does the standard laid out by the plurality in *Baze* apply to a lethal injection protocol that is not substantially similar to the one examined in *Baze*? And third, does a petitioner have to offer an alternative protocol if the State's protocol violates the Eighth Amendment?¹³¹

In *Glossip*, unlike *Baze*, a majority of the Court agreed that the "substantial risk of serious harm" standard was the right one to apply to executions by lethal injection, and further held that the petitioners had the burden to identify a "known and available" alternative that did not pose the same risk of pain in order to show an Eighth Amendment violation.¹³²

¹²⁶ Johnny Holschuh, *Experimenting with Death: Baze v. Rees, the Execution of Dennis McGuire, and the Constitutionality of Experimenting with Lethal Injection Drugs*, U. CINN. L. REV. BLOG (May 13, 2014),

<http://uclawreview.org/2014/05/13/experimenting-with-death-baze-v-rees-the-execution-of-dennis-mcguire-and-the-constitutionality-of-experimenting-with-lethal-injection-drugs/>.

¹²⁷ Greg Botelho & Dana Ford, *Oklahoma Stops Execution After Botching Drug Delivery; Inmate Dies*, CNN (Oct. 9, 2014, 2:55 PM),

<http://www.cnn.com/2014/04/29/us/oklahoma-botched-execution/index.html>.

¹²⁸ Jacob Gershman, *Arizona Inmate Dies 2 Hours After Start of Execution*, WALL ST. J. (July 24, 2014).

¹²⁹ Denno, *Litigation Chaos Post-Baze*, *supra* note 2, at 18-19.

¹³⁰ *Warner v. Gross*, No. CIV-14-0665-F, 2014 WL 7671680 (W.D. Okla. Dec. 22, 2014), *aff'd*, 776 F.3d 721 (10th Cir. 2015), *cert. granted*, No. 14-7955, 2015 WL 302647 (U.S. Jan. 23, 2015).

¹³¹ *Glossip v. Gross*, Brief for Petitioners, No. 14-7955, at (i).

¹³² *Glossip*, 192 L. Ed. 2d at *768.

UNCERTAINTY & THE EIGHTH AMENDMENT

The majority then affirmed the lower court's decision that petitioners had not met their burden.¹³³

How the *Glossip* majority addressed the recent botched executions is instructive. The majority opinion contained some analysis of the Lockett execution, but none of the other botched executions.¹³⁴ The majority appeared to rely on the conclusion of the state's investigation, which was that the execution was botched primarily because the execution team did not obtain intravenous access successfully, and the drugs had leaked into the tissue surrounding the site of the intravenous access, rather than entering Clayton Lockett's bloodstream.¹³⁵ The Court also noted that there were several changes Oklahoma made following the execution to prevent future mistakes. There are now four different drug combinations that Oklahoma can choose from in any given execution.¹³⁶ The primary cocktail includes a dose of midazolam that is five times greater than what was required at the time Clayton Lockett was executed (500 milligrams as opposed to 100 milligrams).¹³⁷ There are also several other safeguards, including the requirement to insert a primary and backup intravenous (IV) line, new procedures to confirm the IV site is viable, an option to postpone an execution if an IV site cannot be established in an hour, and procedures to monitor the inmate's consciousness.¹³⁸ The Court further noted that these procedures have already been used in the execution of Charles Warner, which appeared to have been conducted without incident, though it was later revealed that the wrong drug was administered to kill Warner.¹³⁹

¹³³ *Id.*

¹³⁴ *Id.* at *770-771.

¹³⁵ *Id.* at 771.

¹³⁶ *Id.* Two of these are single doses of barbituates, which is generally recognized not to carry a risk of causing significant suffering, but one of the alternatives is a two drug protocol that contains midazolam and hydromorphone (as has been used in Arizona). See Fernanda Santos & John Schwartz, *A Prolonged Execution in Arizona Leads to a Temporary Halt*, N.Y. TIMES (July 24, 2014).

¹³⁷ *Id.* at 770.

¹³⁸ *Id.* at 771.

¹³⁹ *Id.* See also Erik Eckholm, *Oklahoma Executes First Inmate Since Slipshod Injection in April*, N.Y. TIMES A16, Jan. 16, 2015 (noting that the execution of Charles Warner lasted approximately 18 minutes, and journalists observing the execution did not see signs that Warner was in pain, though Warner said "My body is on fire" as the injections began); Eyder Peralta, *Oklahoma Used The Wrong Drug To Execute Charles Warner*, NPR, <http://www.npr.org/sections/thetwo-way/2015/10/08/446862121/oklahoma-used-the-wrong-drug-to-execute-charles-warner> (October 8, 2015).

UNCERTAINTY & THE EIGHTH AMENDMENT

In the majority opinion, it was clear that Court did not want to grapple with the uncertainty inherent in the analysis of risks posed by relatively novel uses of drugs. The majority opinion spent a great deal of time recounting the recent history of states making changes to lethal injection protocols because of difficulty obtaining access to the drugs they planned to use, and then turned to the evidentiary hearing held about the risks associated with midazolam.¹⁴⁰ However, the Court merely concluded that the expert testimony was reasonable to rely on given extrapolation from the widespread use of midazolam at much lower doses and the fact that many courts have found midazolam to be acceptable.¹⁴¹ The Court also dismissed concerns that midazolam has a ceiling effect at relatively low doses beyond which it cannot anesthetize further by noting that the petitioners had not established at which dose the ceiling effect occurs, and relying on the testimony of an expert who said a 500 milligram dose should be sufficient to anesthetize an inmate undergoing execution.¹⁴²

In her sharply written dissent, Justice Sotomayor critiqued the majority's analysis of the evidence. With regard to the Lockett execution, Sotomayor noted that although the intravenous line placement was flawed, it was determined by autopsy that "the concentration of midazolam in Lockett's blood was more than sufficient to render an average person unconscious."¹⁴³ As Oklahoma has now increased the dose of midazolam it will give inmates in the future by five times (from 100 milligrams to 500 milligrams), the next question is whether a higher dose of midazolam will be sufficient to anesthetize future inmates. Critical to answering that question is how the known "ceiling effect" associated with midazolam operates in practice.

To answer this question, Sotomayor first noted that all three experts testifying before the district court agreed on three things: (1) midazolam is from a class of drugs that can be used for sedation, but that does not relieve pain; (2) midazolam can be used to cause a person to lose consciousness, but is not approved by the FDA for that use on its own and is indicated to be used in combination with other anesthesia; and (3) midazolam has a "ceiling effect" beyond which giving more of the drug will stop having any effect on the person receiving it.¹⁴⁴ The disagreement was over how high of a dose has to be given before midazolam would hit this ceiling and stop having any additional effect on the inmate.¹⁴⁵

¹⁴⁰ Glossip, 192 L. Ed. 2d at *769-770.

¹⁴¹ *Id.* at *778-779.

¹⁴² *Id.* at *780.

¹⁴³ *Id.* at 785 (Sotomayor, J., dissenting).

¹⁴⁴ *Id.* at *825.

¹⁴⁵ *Id.*

UNCERTAINTY & THE EIGHTH AMENDMENT

Two of the experts who testified for the petitioners explained that midazolam is an unreliable drug to use in executions because its ceiling effect is likely to occur at doses lower than 500 milligrams.¹⁴⁶ They based these arguments on the mechanism of action of midazolam, the 2014 execution of Joseph Wood in Arizona (who was given 750 milligrams of midazolam but continued moving and breathing for almost two hours), a study of midazolam in rats, a survey article, and various scientific textbooks.¹⁴⁷ The third expert, testifying for the State, indicated that midazolam was an effective drug to use as part of a lethal injection cocktail.¹⁴⁸ First, he argued that deaths have occurred when people have been given much lower doses of midazolam (less than a 5 milligram dose), which suggested that a 500 milligram dose would be lethal.¹⁴⁹ Second, he disputed the claim that the mechanism of action of midazolam would generate a ceiling effect at such a dose.¹⁵⁰ For this second argument, he relied on two sources: the website www.drugs.com and the “Material Safety Data Sheet” that was produced by a manufacturer of midazolam.¹⁵¹ Justice Sotomayor raised concerns about the evidence presented by the State’s expert primarily based on the sources on which he relied.¹⁵²

However, neither this dissent nor the majority opinion explicitly addressed the issue of uncertainty. One of the major challenges facing courts looking at the risks of using midazolam is that there are very limited data to rely on regarding how the drug is used in executions. Experts have testified to explain that the existing data are not sufficient to be confident about the use of midazolam in executions.¹⁵³ Although the theoretical mode of action, the use of midazolam at much lower doses in routine operations involving anesthesiologists, and animal studies are valid sources of evidence,¹⁵⁴ the best evidence would be the use of midazolam at the doses used in executions, in combination with other lethal injection drugs, and with limited medical expertise involved on the part of those administering the drugs as typically occurs in executions by lethal

¹⁴⁶ *Id.* at *825-826.

¹⁴⁷ *Id.* at *826.

¹⁴⁸ *Id.* at *826-827.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* at *827.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.* at *778 (concluding that “because a 500-milligram dose is never administered for a therapeutic purpose, extrapolation [from the use of much lower doses] was reasonable”).

¹⁵⁴ *Id.* at *826-827 (Sotomayor, J., dissenting) (citing Hovinga et al., *Pharmacokinetic-EEG Effect Relationship of Midazolam in Aging BN/BiRij Rats*, 107 *BRIT. J. PHARMACOLOGY* 171, 173, Fig. 2 (1992)).

UNCERTAINTY & THE EIGHTH AMENDMENT

injection. In other words, the best evidence on the risks of using midazolam in executions would come from the use of midazolam in executions. Courts are often constrained by what has been presented in evidentiary hearings, and the fact that the cases before them involve a review of one particular state's protocol. It is difficult for a court to be in a position to analyze aggregate data across executions using the same drug combinations in different states, but this is likely the best source of information about the use of particular drugs, doses, and combinations in an execution context. In that light, the fact the petitioner's expert did rely on the evidence from the execution of Joseph Wood is important and should not be dismissed.

In addition to the evidence of what occurred in that execution, it is also the case that midazolam was used in three of the four executions that were clearly botched in 2014.¹⁵⁵ Midazolam was used in 2 executions in 2013,¹⁵⁶ 11 executions in 2014,¹⁵⁷ and 2 executions in 2015.¹⁵⁸ To calculate the overall rate for botched executions involving midazolam, it was botched in 3 out of 15 executions, for a rate of 20%. If, as the *Glossip* majority seems to conclude, we assume that the Lockett execution was botched due to poor IV access and not because of the use of midazolam to obtain a more conservative estimate, the rate of complications in executions with midazolam is 2 out of 15, or 13.3%. It is important to note that this is a very conservative estimate. When states use midazolam in combination with a paralytic agent, as Florida does, it is very difficult to tell if the inmate is experiencing excruciating suffering because the inmate is unable to vocalize or move to indicate anything out of the ordinary. Therefore, the risk associated with midazolam could be much higher than I have calculated.

In the hierarchy of scientific evidence,¹⁵⁹ the best evidence about the use of midazolam in executions is evidence of its use in humans at the same doses and in the same combinations, followed by use in humans at

¹⁵⁵ See *Missouri Used Controversial Execution Drug Midazolam, Report Finds*, THE GUARDIAN (Sept. 3, 2014), <http://www.theguardian.com/world/2014/sep/03/missouri-execution-drug-sedative-midazolam-report>.

¹⁵⁶ Death Penalty Information Center (DPIC), Execution List 2013, available at: <http://www.deathpenaltyinfo.org/execution-list-2013>. As mentioned earlier, Florida's first execution with midazolam did appear to be prolonged, but it is not clear whether that execution could be described as botched uncontroversially.

¹⁵⁷ DPIC, Execution List 2014, available at: <http://www.deathpenaltyinfo.org/execution-list-2014>.

¹⁵⁸ DPIC, Execution List 2015, available at: <http://www.deathpenaltyinfo.org/execution-list-2015>.

¹⁵⁹ World Medical Association, Declaration of Helsinki, para. 21, June 1964; available at <http://www.wma.net/en/30publications/10policies/b3/>.

UNCERTAINTY & THE EIGHTH AMENDMENT

lower doses and in different combinations, followed by use in relevant animal models, followed by theoretical mechanisms of action. In that light, neither side in *Glossip* had conclusive evidence about whether the use of midazolam is truly likely to cause excruciating suffering. The majority is content to err on the side of causing pain if there is insufficient evidence to have a definitive answer. Justice Sotomayor suggests that the best evidence we have (though she does not turn to the evidence about errors across executions in different states) suggests midazolam simply should not be used, especially relative to other drugs and/or methods of execution.

There could be other approaches courts could take, though they are somewhat ill-equipped to consider them. For instance, one approach would be to examine the rate of error across different executions using midazolam, as I demonstrated above, and better quantify the standard based on analogy to how it is used in other contexts, as I will argue for below. In the face of uncertainty, it might also make sense to require that more data are gathered about the use of midazolam if it is to be used in executions by lethal injection in the future at a minimum.

II. MANAGING RISK AND UNCERTAINTY IN OTHER DOMAINS

I have argued elsewhere that applying a research ethics framework to the context of capital punishment is helpful for identifying additional protections that could help prevent future botched executions.¹⁶⁰ Here I make a more modest claim directly addressing existing jurisprudence in this area. In this Article, I argue that the approaches to understanding risk and uncertainty in other domains, particularly in the context of biomedical research, demonstrate that the “substantial risk of serious harm” standard is too tolerant of risk in light of societal standards, and further that this standard has been misapplied to risks in lethal injection by the Court.

There are other domains in which scholars and regulators have addressed questions surrounding risk and uncertainty in great depth, because these questions are central features of the regulated activities. These domains include: (1) environmental protection and the regulation of toxic substances, and (2) biomedical research. Drawing insights from these domains can help courts with the analysis of the risk and uncertainty inherent in lethal injection executions. As I will argue further below, the regulation of toxic substances is unfortunately of limited help, and the most relevant of domain for our purposes is biomedical research.

¹⁶⁰ Seema K. Shah, *Experimental Execution*, 90 Wash. L. Rev. 147, 194 (2015). In that article, I focused on the widely accepted view that risks should be minimized when research is conducted. Here I expand beyond that analysis of risk.

UNCERTAINTY & THE EIGHTH AMENDMENT

A. Public health regulation of toxic substances

One domain that seems promising for evaluating uncertain risk is the public health regulation of toxic substances. This is because the regulation of toxic substances that are released into the environment is complex, and often requires extrapolating from limited data to determine what substances might pose risks to the general public.¹⁶¹ The Environmental Protection Agency (EPA) generally takes the approach of regulating toxic substances under the precautionary principle.¹⁶² The precautionary principle, in use since the 1970s, involves a conservative approach to the regulation of risk – when there are any doubts about safety, regulators err on the side of caution.¹⁶³ One helpful insight of this principle is that there may be times when decisive evidence of harm is not available, and that alone is not sufficient for refusing to regulate the harm.¹⁶⁴ The Supreme Court has endorsed the EPA’s approach as follows: “so long as they are supported by a body of reputable scientific thought, the Agency is free to use conservative assumptions in interpreting the data...[and should err] on the side of overprotection rather than underprotection.”¹⁶⁵

Yet the precautionary principle has many critics.¹⁶⁶ Lisa Ellman and Cass Sunstein argue that the principle is often impossible to put into

¹⁶¹ Lisa M. Ellman & Cass R. Sunstein, *Hormesis, the precautionary principle, and legal regulation*, 23 HUM. & EXPERIMENTAL TOXICOLOGY 601, 601 (2004).

¹⁶² *Id.* Note that the Food and Drug Administration also uses a version of the precautionary principle. See Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH & LEE L. REV. 851, 855 (1996).

¹⁶³ Peter L deFur & Michelle Kaszuba, *Implementing the precautionary principle*, 288 SCI. TOTAL ENVIRON. 155, 155 (2002); see also Rio Declaration on Environment and Development, (UN Doc A/CONF.151/26 (vol I) (1992) (Principle 15)) (“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”).

¹⁶⁴ *Id.* at 606.

¹⁶⁵ *Ind. Union Dept., AFL-CIO versus Amer. Pet. Inst. (‘Benzene’)*, 448 U.S. 607, 656 (1980).

¹⁶⁶ See, e.g., Ellman & Sunstein, *supra* note 148, at 602-603; deFur & Kaszuba, *supra* note 152, at 158 (noting that there are both economic attacks on the precautionary principle and criticisms that demonstrate significant misunderstanding about it); Ed Soule, *The Precautionary Principle and the Regulation of U.S. Food and Drug Safety*, 29 J. MED. PHIL. 333, 333 (2004); Cross, *supra* note 151, 53 WASH & LEE L. REV. at (“Because the precautionary principle counsels for action against even those uncertain hazards that might be nonexistent, the presence of real adverse health effects consequent to that action means that the regulation will often cause more health harm than good.”).

UNCERTAINTY & THE EIGHTH AMENDMENT

practice, because there are risks associated with inaction *and* action.¹⁶⁷ Moreover, as Ellman and Sunstein suggest, part of the ambiguity about applying the precautionary principle is that it does not provide guidance on how far to go or how careful to be. They argue for refining the precautionary principle “rather than accepting a general (and almost comically unhelpful) plea for risk aversion.”¹⁶⁸ Their proposal is to “use the best scientific understandings of relevant risks and to adopt sensible default assumptions in the face of uncertainty.”¹⁶⁹

Applying this principle to executions by lethal injection is instructive, but poses one major challenge: the question of what default assumptions are sensible. Sotomayor’s dissent could be understood as using a version of the precautionary principle, in that she argues that, in light of the existing evidence of risks associated with midazolam use in executions, its use should be found to violate the Eighth Amendment. Her default appears to be that a new drug should not be used in executions by lethal injection unless there is no good reason to be concerned about the risks involved. On the other hand, the majority opinion seems to conclude the opposite – in light of the lack of definitive evidence that midazolam is not safe to use in executions, executions can proceed. Though the majority explains this approach as a matter of the petitioners not meeting their burden of proof,¹⁷⁰ another way to characterize this approach would be to call it a postcautionary principle.¹⁷¹ Their default assumptions include the following: (1) that capital punishment is constitutional, (2) that the Court rarely invalidates a method of execution, and (3) that the Court will not put states in positions where the lack of alternatives within the method will effectively render a method of execution unconstitutional in at least some

¹⁶⁷ Ellman & Sunstein, *supra* note 150, at 602-603.

¹⁶⁸ *Id.* at 601.

¹⁶⁹ *Id.* at 609.

¹⁷⁰ Cf. Stephen Charest, *Bayesian Approaches to the Precautionary Principle*, 12 DUKE ENVTL. L. & POL'Y F. 265, 266-267 (2002) (“the Precautionary Principle may be viewed as a burden-shifting device that places the responsibility of demonstrating a product's or process's safety on those who would introduce it, rather than a demonstration of harm on those who would regulate it.”); Carl F. Cranor, *Learning from the Law to Address Uncertainty in the Precautionary Principle*, 7 SCI. & ENGINEERING ETHICS 313, 319 (2001). Just as the precautionary principle could be a form of shifting the burden of proof, the postcautionary principle could be used to shift the burden of proof in the opposite direction.

¹⁷¹ John Paull, *Certified Organic Forests & Timber: the Hippocratic Opportunity*, NZSEE Conference, *Reinventing Sustainability: A Climate for Change* (2007), <http://orgprints.org/11042/1/11042.pdf> (characterizing this approach as “throwing caution to the wind” or waiting until environmental degradation has occurred to act).

UNCERTAINTY & THE EIGHTH AMENDMENT

states. The gap between these default assumptions suggests underlying views about capital punishment that are difficult to reconcile,¹⁷² making it very difficult to incorporate Ellman and Sunstein's proposal in this context.

In sum, both the postcautionary and precautionary principles require normative justifications for erring on one side or the other, fail to engage in careful analysis of the exact nature of the uncertainties involved, and require setting default assumptions that will likely be controversial in the context of capital punishment. It is also worth mentioning that these principles are typically used in situations where the questions are about risks to the general population, and may be less helpful in deciding what to do regarding executions where the risks apply to a specified group of individuals. Other domains regulate risks imposed on a specified group of individuals will be more apt comparisons.

B. Regulation of biomedical research

Biomedical research is conducted in order to learn about the safety and efficacy of new interventions and how they work in the body, which means that it typically requires exposing individuals to uncertain risk of harm. In terms of setting risk thresholds and quantifying what those risk thresholds allow and prohibit, the literature on research ethics and regulation has advanced far beyond cases applying the Eighth Amendment to risks of uncertain harm. I will argue that there are three key insights from the literature on biomedical ethics and regulation, only one of which has been addressed by courts in Eighth Amendment jurisprudence: (a) risk has two components – degree and likelihood of harm; (b) the highest thresholds for risk tolerated in research do not involve *both* a high degree and likelihood of harm; and (c) quantifying what counts as a significant likelihood of serious harm in biomedical research would permit approximately a 1/10000 chance of serious harm, which is far less risk than the Supreme Court has permitted in the context of executions by lethal injection.

1. Two components of risk

Risk is recognized to have two components – the degree of harm (how bad it is) and the probability of that harm occurring (how likely it is to come to pass).¹⁷³ Although this observation may seem obvious, it is

¹⁷² See Charest, *supra* note 159, at 285 (explaining that even taking a Bayesian approach to the precautionary principle has limitations if different parties disagree on background or prior assumptions).

UNCERTAINTY & THE EIGHTH AMENDMENT

important to the arguments that follow so it seems necessary to run through it first. To specify a risk standard or threshold, then, it is important to specify what it allows in terms of both components of risk.

Courts applying the Eighth Amendment to risks of harm have generally recognized the importance of specifying both components of risk. As previously mentioned, the prevailing standard is that a *substantial* risk of *serious* harm violates the Eighth Amendment. However, the Court has also described this standard in other terms, such as “an objectively intolerable risk of harm,”¹⁷⁴ which does not specify the two components of risk and relies on judicial intuitions to be interpreted. Additionally, as noted above, the Eighth Amendment jurisprudence has neglected to clarify the probability component in a meaningful way and has not specified what counts as a substantial chance of harm.

One reason for this may be that courts are rarely presented with data about how likely a harm is to come to pass in advance, so they do not often deal in concrete probabilities. For instance, lethal injection cases involve questions about the risk of harm based on the evidentiary record developed in lower state courts. In *Baze v. Rees*, the Court considered Kentucky’s protocol even though it had only conducted one lethal injection execution in the past.¹⁷⁵ The Court in *Glossip* considered Oklahoma’s record, which included one execution that had been botched, but did not have the facts of all executions using the same drug protocol before it.¹⁷⁶ Even in prison conditions cases, courts typically are faced with situations where an inmate has been harmed as a result of a risk that the plaintiff claims was inappropriately addressed by prison officials. As a result, analysis of what would count as a “substantial” chance of harm is lacking, and this makes it difficult to predict how the Supreme Court will react to botched executions in the future and what would count as such a likelihood of harm that the Court would not tolerate it.

Additionally, the lack of clear guidance about what probabilities of harm are too high leaves room for the effects of cognitive biases. Classic psychology experiments have established that, in the face of evaluating uncertain outcomes, intuition and the reliance on heuristics often lead us to commit severe and systematic errors.¹⁷⁷ Studies of experts asking them to

¹⁷³ Annette Rid, Ezekiel J. Emanuel, David S. Wendler, *Evaluating the Risks of Clinical Research*, 13 J. AM. MED. ASSOC. 1472, 1472 (2010).

¹⁷⁴ *Glossip*, 192 L. Ed. 2d at *775.

¹⁷⁵ *Baze*, 553 U.S. at 46.

¹⁷⁶ See generally *Glossip v. Gross*, 135 S. Ct. 2726, 192 L. Ed. 2d 761 (2015).

¹⁷⁷ Neil Weinstein, *Optimistic Biases about Personal Risks*, 246 SCI. 1232, 1232-33 (1989); Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1124 (1974).

UNCERTAINTY & THE EIGHTH AMENDMENT

evaluate the risks in research have found wide variation in their intuitive judgments, suggesting that intuition is unreliable.¹⁷⁸ This evidence suggests that the failure to specify a probability of harm that is beyond the pale may put courts in the position of making significant mistakes.

Annette Rid has argued that a better way to regulate risk in the research context is to take a “constrained pure procedural” approach to setting limits on risk.¹⁷⁹ Rid argues that “[a] key challenge...is to set risk thresholds in a way that respects reasonable disagreement, while provide adequate guidance to minimize unreasonable judgments about risk.”¹⁸⁰ This requires setting thresholds that specify limits on both the likelihood and magnitude of harm by specifying general likelihood thresholds for a particular magnitude of harm (such as greater than 1/100,000), and also allowing for procedures to evaluate whether risks fall under these constraints.¹⁸¹ Rid suggests that likelihood thresholds should be established by relying on analogy to activities that are considered similarly acceptable to the activity in question.¹⁸²

Returning to the context of execution by lethal injection, then, one way to determine what counts as a substantial risk of serious harm is to compare how risk is dealt with in similar activities. Moreover, such an approach is in line with cases that propose establishing what risks are acceptable in the execution context by looking to “whether society considers the risk that the prisoner complains of to be so grave that it violates contemporary standards of decency to expose anyone unwillingly to such a risk.”¹⁸³ In that light, it may be helpful to turn to how these thresholds are set in the context of biomedical research, which I have argued elsewhere is a relevantly similar activity.¹⁸⁴

2. High degrees and likelihoods of harm are not permitted in biomedical research

¹⁷⁸ Seema K. Shah, Amy Whittle, Benjamin Wilfond, Gary Gensler, David Wendler, *How do institutional review boards apply the federal risk and benefit standards for pediatric research?* 291 J. AM. MED. ASSOC. 476, 478 (2004); Lenk C, Radenbach K, Dahl M, Wiesemann C, *Nontherapeutic research with minors*, 30 J. Med. Ethics. 85, 86 (2004).

¹⁷⁹ Annette Rid, *Setting risk thresholds in biomedical research*, 32 MONASH BIOETH. REV. 63, 80 (2014).

¹⁸⁰ *Id.* at 80.

¹⁸¹ *Id.* at 83.

¹⁸² *Id.*

¹⁸³ *Helling*, 509 U.S. at 35-36; *see also Tindell v. Dep’t of Corrections*, 87 A.3d 1029, 1039 (Pa. Commw. 2014).

¹⁸⁴ Shah, *Experimental Execution*, *supra* note 4, at 163-170.

UNCERTAINTY & THE EIGHTH AMENDMENT

Existing regulations and ethical codes governing biomedical research explicitly regulate risk in various ways. The U.S. federal regulations lay out only a few categories of risk: minimal risk, a minor increase over minimal risk, and more than minimal risk.¹⁸⁵ Many countries have regulations governing research that require comparing the risks in research to the risks of daily life to determine which risks are minimal and which merit greater scrutiny and protections.¹⁸⁶ Yet, regulations do not necessarily have upper risk limits for research with consenting adults, and the U.S. federal regulations allow risk to be borne by individuals as long as it is justified by the resulting benefit to society.¹⁸⁷ On the other hand, the Nuremberg Code long ago laid out a limit on research risks: “No experiment should be conducted where there is an a priori reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.”¹⁸⁸ It is now widely accepted among scholars that absolute risk limits should be set in research for various reasons, including the uncertainty surrounding societal benefit that can be obtained from research and the need to maintain public confidence in biomedical research.¹⁸⁹

Scholars have further specified more categories of risk to distinguish in terms of the magnitude of harm, and have provided some guidance about quantifying this risk. In particular, Rid, Emanuel, and Wendler have noted that there are seven possible categories of magnitudes of harm: (1) negligible, (2) small, (3) moderate, (4) significant, (5) major, (6) severe, and (7) catastrophic.¹⁹⁰ Examples of negligible or small harms include mild nausea or headache; moderate harms include uncomplicated bone fracture; significant harms include intensive care for several weeks if there are no other long-term effects; major harms include a psychotic episode or the loss of a finger; severe harms include paraplegia; and catastrophic harms include severe dementia and death.¹⁹¹

¹⁸⁵ 45 C.F.R. § 46 subpart D (2014).

¹⁸⁶ Rid, *supra* note 181, at 83 (citing regulations from the U.S., Canada, India, South Africa, and Uganda).

¹⁸⁷ See generally 45 C.F.R. § 46 (2014).

¹⁸⁸ Evelyne Shuster, *Fifty Years Later: The Significance of the Nuremberg Code*, N. ENGL. J. MED. 1436, 1436 (1997) (reprinting the complete text of the code and explaining its enduring significance). Note that the exception for experiments that include the participation of investigators as subjects was to acknowledge the value of the yellow fever experiments conducted by Walter Reed. See Franklin G. Miller, & Steven Joffe, *Limits to Research Risks*, 35 J. MED. ETHICS 445, 445 (2009).

¹⁸⁹ Miller & Joffe, *supra* note 189, at 448-449.

¹⁹⁰ Annette Rid, Ezekiel Emanuel, David Wendler, *Evaluating the Risks of Clinical Research*, 304 J. AM. MED. ASSOC. 1472, 1474 (2010).

¹⁹¹ *Id.*

UNCERTAINTY & THE EIGHTH AMENDMENT

The dominant method for understanding what level of risk to tolerate in research is to look at the risks tolerated in other, relevantly similar activities that are socially accepted.¹⁹² Rid and Wendler map out the chances of these harms occurring in daily life and compare them to the chances of these harms occurring in research procedures; if the harms are more likely to occur in the procedure than in daily life, the procedure is deemed more than minimal risk.¹⁹³ Using this method, a low likelihood would involve less than a 1/10,000 chance of harm, and a high likelihood or a harm occurring would involve a chance that is equal to or greater than 1/10,000.¹⁹⁴

3. “A substantial risk of serious harm” would permit an order of magnitude less harm in research than the Court has allowed in executions by lethal injection

One way to quantify the risk standard used in Eighth Amendment jurisprudence is to make reference to similar terms used in research to describe magnitudes and probabilities of harm. If a major harm in research includes a psychotic episode or the loss of a finger, then the torturous pain and suffering associated with a lethal injection execution involving insufficient anesthesia would likely constitute at least a major harm. Assuming a significant chance of harm is meant to indicate a relatively high probability that the harm will occur, then a chance would count as significant as long as it was likely to occur in 1/10,000 cases. Comparing this to the rate of error seen in lethal injection executions involving midazolam (~3/15), it is clear that the chance of harm in these executions is an order of magnitude higher than what is considered high risk in research. The magnitude of harm described also appears to be major, as it was acknowledged by all parties in *Baze v. Rees* that if an inmate was not properly anesthetized, the harm would involve torturous pain and suffering.¹⁹⁵ This suggests that the standard used by the Court is not being appropriately applied to the actual risk seen in executions using midazolam.

One problem with this analysis, however, is that the sample size to establish the error rate in executions is very small. Given that there have only been fifteen executions involving midazolam, the probability of harm is difficult to calculate with certainty, and there is probably a wide margin of error. Assuming, however, the comparison to how harms are evaluated

¹⁹² See, e.g., Miller & Joffe, *supra* note 189, at 446; Rid, *supra* note 179, at 83 (2014).

¹⁹³ Rid, Emanuel, & Wendler, *supra* note 191, at 1476.

¹⁹⁴ Rid, *supra* note 181, at 73.

¹⁹⁵ *Baze v. Rees* at 53.

UNCERTAINTY & THE EIGHTH AMENDMENT

in research is apt, the margin of error may not matter given that there is such a large gap between what is considered a high chance of harm in research and what the Court considers a substantial chance of harm in executions.

Nevertheless, an important and intractable problem for the analysis of lethal injection protocols is the lack of robust data about the drugs, doses, and combinations being used. Data about the outcomes of executions are not gathered in a systematic way, and an investigation into what actually happened in a lethal injection execution thus far has only occurred when an execution is so obviously botched that the resulting public outcry requires governors to intervene.¹⁹⁶ As a result, some executions that may have involved significant pain and suffering but involved no outward signs to indicate as such (for example, because of the use of a paralytic agent) will not be counted in these figures. Additionally, the drugs used in executions are used at much higher doses and in different combinations than in clinical practice, and also differ from what is used in jurisdictions that allow euthanasia because of the various restrictions on drugs entering the United States. This means there is no solid body of evidence to rely on to have certainty about how these drugs in such high doses and unusual combinations will work. Courts are therefore left to extrapolate from limited animal data and theoretical mechanisms of action to determine whether a particular drug is too risky. It is well known that these methods have limited explanatory power for what will happen when drugs are used in humans – which is why research on human subjects is conducted in the first place.¹⁹⁷ Moreover, courts often do not indicate what burden of proof they are using when they review evidence of potential Eighth Amendment violations, but they most frequently rely only upon a preponderance of the evidence standard, suggesting that the courts are not taking a very cautious approach to managing the uncertain risk involved.¹⁹⁸

III. CRITIQUE OF THE ANALYSIS OF ALTERNATIVE METHODS IN *GLOSSIP*

In both *Glossip* and *Baze*, the Court started with the premise that “because it is settled that capital punishment is constitutional, [i]t necessarily follows that there must be a [constitutional] means of carrying

¹⁹⁶ See, e.g., Jacob Gershman, *Arizona Inmate Dies 2 Hours After Start of Execution*, WALL ST. J. (July 24, 2014, 7:11 AM), <http://www.wsj.com/articles/arizona-inmate-joseph-rudolph-wood-dies-2-hours-after-start-of-execution-1406159321>.

¹⁹⁷ See Section IIB, *supra*.

¹⁹⁸ Deborah W. Denno, *Getting to Death: Are Executions Constitutional?*, 82 IOWA L. REV. 321, 335 (1996-1997).

UNCERTAINTY & THE EIGHTH AMENDMENT

it out.”¹⁹⁹ The question of what that means must be is a critically important question, and the majority bent over backwards to determine that the alternative means has to be the same means at issue—in other words, another, available method of lethal injection.

One reason for this is the concern the Court seemed to have about death penalty advocates using lethal injection challenges as an indirect approach to abolishing the death penalty. In the majority opinion in *Glossip*, the justices spend several paragraphs explaining the recent changes to execution protocols that Court suggests were spurred by the fact that “anti-death-penalty advocates pressured pharmaceutical companies to refuse to supply the drugs used to carry out death sentences.”²⁰⁰ The Court briefly notes that at least one drug manufacturer opposed the death penalty and therefore blocked the importation of its product into the U.S. for use in executions.²⁰¹

Although it is important to note that the petitioners in *Glossip* and anti-death penalty advocates who lobbied for drug embargos and restrictions are different actors, whether it is the anti-death penalty advocates or the drug manufacturers who object to the death penalty seems important in this analysis. The Supreme Court may be legitimately concerned that advocates will game the system and manipulate the legal standards the Court lays out, so if the bulk of the pressure on drug supply has come entirely from advocates, the Court may be wary of imposing more restrictive standards of which advocates will take further advantage. On the other hand, if the advocates found fertile ground in drug manufacturers who were concerned about their own complicity if they were to supply their products for use in executions, then these are legitimate moves any private actor can make, and the standards imposed by the Court are unlikely to make any sort of difference. Significantly, two drug companies who manufacture midazolam, the drug that was used in the protocol the Supreme Court just approved in *Glossip*, have expressed ethical concerns about the use of the drugs in executions.²⁰² Moreover, the advocates acting in these arenas are not doing so at the behest of inmates

¹⁹⁹ *Glossip v. Gross*, 135 S. Ct. 2726, 192 L. Ed. 2d 761, at *769 (citing *Baze*, 553 U.S. at 47).

²⁰⁰ *Id.* at * 769.

²⁰¹ *Id.*

²⁰² See *Akorn Adopts Comprehensive Policy to Support the Use of Its Products to Promote Human Health*, <http://www.deathpenaltyinfo.org/files/AkornStatement.pdf> (March 5, 2014); *Roche Statement on use of midazolam for death penalty*, <http://www.deathpenaltyinfo.org/documents/RocheStatement.pdf> (“Roche did not supply midazolam for death penalty use and would not knowingly provide any of our medicines for this purpose. We support a worldwide ban on the death penalty”).

UNCERTAINTY & THE EIGHTH AMENDMENT

on death row – they are acting independently, and their actions should not be ascribed to inmates seeking to challenge the changes to lethal injection that states make in response.

Furthermore, the Court placed the burden of proof on challengers to a lethal injection protocol to show that there are alternatives to the State’s lethal injection protocol that do not carry the same risk of pain. The Court also heightened this standard by requiring that petitioners propose a practical lethal injection alternative that can actually be implemented, and concluded that the petitioners “have not identified any available drug or drugs that could be used in place of those that Oklahoma is now unable to obtain.”²⁰³

There are several flaws with this logic. As Nadia Sawicki has argued, it should not be possible that a method of execution that would otherwise violate the Eighth Amendment becomes constitutional because there are no alternatives consistent with the Eighth Amendment.²⁰⁴ Justice Sotomayor makes this point even more forcefully in her dissent in *Glossip*: “A method of execution that is intolerably painful—even to the point of being the chemical equivalent of burning alive—will, the Court holds, be unconstitutional if, and only if, there is a ‘known and available alternative’ method of execution.”²⁰⁵ Imagine a scenario where there were drug shortages, gun shortages, shortages of lethal gas, no available electric chairs, etc. Would that mean that any approach to execution that could be carried out, even if that method was burning at the stake, would become a constitutional method of execution? As Sotomayor argues, the State “does not get a constitutional free pass simply because it desires to deliver the ultimate penalty; its ends do not justify any and all means. If a State wishes to carry out an execution, it must do so subject to the constraints that our Constitution imposes on it, including the obligation to ensure that its chosen method is not cruel and unusual.”²⁰⁶

Justice Sotomayor also points out that the precedent for this requirement of a feasible alternative is shaky. The requirement that there be feasible alternatives proposed before a constitutional violation could be found was not endorsed by a majority of the Court in *Baze*, and the question presented in *Baze* was precisely about whether the State’s protocol was too risky given the availability of safer alternatives, which is the

²⁰³ *Glossip*, 192 L. Ed. 2d at *775.

²⁰⁴ Nadia Sawicki, *There Must Be a Means: The Backward Jurisprudence of Baze v. Rees*, 12 U. PENN. J. CON. L. 1407, 1411 (2010) (explaining that “a lack of feasible alternatives might save a facially prohibited procedure”).

²⁰⁵ *Glossip*, 192 L. Ed. 2d at *836 (Sotomayor, J., dissenting) (quoting the majority opinion).

²⁰⁶ *Id.* at 838.

UNCERTAINTY & THE EIGHTH AMENDMENT

relevant context for this part of the plurality opinion.²⁰⁷ There is no indication in *Baze* that the comparative risk analysis was meant to apply to every future challenge to an execution method.

It is also unclear why the Court artificially limited the alternatives to different ways of conducting lethal injection executions. A majority of states that retain the death penalty (16/31) have methods of execution other than lethal injection written into their statutes, some in contemplation of the possibility that lethal injection might be determined to be unconstitutional, and the Federal government includes the option of deferring to an authorized method in the state in which the execution is conducted.²⁰⁸ Even assuming lethal injection would be found unconstitutional by a given state,²⁰⁹ why are those not viable alternatives? After all, the Court has never invalidated a method of execution.²¹⁰ Justice Sotomayor suggests that the “use of the firing squad could be seen as a devolution to a more primitive era,” but notes that that does not mean the firing squad would be unconstitutional.²¹¹ The *Glossip* majority picks up on this phrase and raises the concern that, “[i]f States cannot return to any of the ‘more primitive’ methods used in the past and if no drug that meets with the principal dissent’s approval is available for use in carrying out a death sentence,” capital punishment will be rendered unconstitutional for lack of a means by which to carry it out.²¹²

The specter the majority fears is not one that has been raised by this case. To ensure that it will not appear in the future, the Court has blessed an approach to lethal injection that raises significant and unresolved questions. Returning to this history of execution methods discussed in Section I, however, it is important to acknowledge that there are significant constitutional questions about whether hanging, firing squad, electrocution, and lethal gas are constitutional. Under the assumption that lethal injection was chosen by states as a more humane method of execution than the alternatives, these questions loom large. The history reveals, however, that this assumption is false. Lethal injection was chosen in part because it was cheaper to adopt it than to fix methods that had

²⁰⁷ *Id.* at 836-837.

²⁰⁸ See Death Penalty Information Center, *Methods of Execution*, <http://www.deathpenaltyinfo.org/methods-execution> (July 1, 2015); Clark County Prosecuting Officer, *The Death Penalty: Methods of Execution*, <http://www.clarkprosecutor.org/html/death/methods.htm> (Aug. 12, 2015).

²⁰⁹ Cf. *Ventura v. State*, 2 So. 3d 194, 198 (Fla. 2009) (“We have repeatedly and consistently rejected Eighth Amendment challenges to Florida’s current lethal-injection protocol.”).

²¹⁰ *Baze*, 553 U.S. at 48.

²¹¹ *Glossip*, 192 L. Ed. 2d at *840 (Sotomayor, J., dissenting).

²¹² *Id.* at *777 (majority opinion).

UNCERTAINTY & THE EIGHTH AMENDMENT

fallen into disrepair during the ten years that executions were halted in the United States. Additionally, execution by lethal injection requires a significant amount of medical expertise that states have struggled to obtain, and this is likely an important reason that the rate of error in executions by lethal injection is double the rate of error in any other method of execution.²¹³ While the perception may be that lethal injection is less constitutionally problematic than alternative methods, then, the reality is that it may be more likely to violate the prohibition on cruel and unusual punishment than other methods.

A related question is whether the evolving standards of decency jurisprudence that began with *Trop v. Dulles*²¹⁴ could be used to invalidate older methods of execution. Some scholars have argued as much with regard to lethal gas and electrocution.²¹⁵ The evidence suggests that lethal injection is not more humane than the alternatives, but it may be that justices and the public could not stomach the prospect of returning to methods such as hanging, the firing squad, electrocution, and lethal gas. The fact that some methods, such as firing squad, have never been widely adopted may make them vulnerable to challenges that they violate evolving standards of decency because they are so rare.²¹⁶ Concerns about the violence of the act, the effect on executioners, the dignity of the condemned, and the mutilation of the body may be sufficient to raise Eighth Amendment challenges. It bears mentioning, however, that the firing squad and lethal gas have relatively low rates of error,²¹⁷ and tend to be accurate methods of killing that do not have the same degree of uncertainty about the potential for suffering that plagues execution by lethal injection. Judge Kozinski of the Ninth Circuit Court of Appeals has argued that the aversion to the firing squad may simply stem from an aversion to killing itself, which may suggest underlying discomfort with

²¹³ Sarat, *supra* note 8, at Appendix A.

²¹⁴ 356 U.S. at 100-101.

²¹⁵ Denno, *supra* note 48, at 371 (1997).

²¹⁶ Clark County Prosecuting Officer, *The Death Penalty: Methods of Execution*, <http://www.clarkprosecutor.org/html/death/methods.htm> (Aug. 12, 2015) (“In recent history only three inmates have been executed by firing squad, all in Utah: Gary Gilmore (1977), John Albert Taylor, and Ronnie Lee Gardner (2010). While the method was popular with the military in times of war, there has been only one such execution since the Civil War: Private Eddie Slovak in WWII....Only 2 states, Oklahoma and Utah, currently authorize shooting as a method of execution, all as an alternative to lethal injection, depending upon the choice of the inmate, whether injection is “impractical,” or the possibility of lethal injection being held unconstitutional.”).

²¹⁷ Banner, *supra* note 16, at 203.

UNCERTAINTY & THE EIGHTH AMENDMENT

the death penalty.²¹⁸ If that is truly the case, refusing to acknowledge or confront this discomfort merely delays the inevitable abolition of the death penalty in many jurisdictions.

Lethal gas, on the other hand, would not be allowed in states bound by *Fierro v. Gomez*,²¹⁹ but the issue would likely be reviewed by the U.S. Supreme Court again in states ostensibly bound by *Fierro* given that *Fierro* was rendered moot in the past by the adoption of lethal injection. There is also no barrier to its use in other states. There are also methods involving a hood placed over the head of the inmate that may be more palatable and feasible than building new gas chambers, and coupled with the use of nitrogen gas, such methods may raise fewer questions about the safety of the audience.²²⁰ Lethal gas may raise similar questions to lethal injection because it is a medical intervention regulated by the FDA, as I have argued elsewhere, but this depends on the FDA's willingness to become involved in capital punishment, which is not very likely.²²¹ A more significant issue may be that medical suppliers of lethal gas may have objections to the use of their products in executions, as the suppliers and manufacturers of many lethal injection drugs have expressed, so shortages may still be of issue even with a switch to lethal gas. The use of lethal gas may also seem unsavory, given its prior uses, raising questions about whether it comports with evolving standards of decency.

IV. OBJECTIONS

²¹⁸ *Wood v. Ryan*, 759 F.3d 1076, 1103 (9th Cir. 2014) (Kozinski, J., dissenting) (arguing that executions “are brutal, savage events, and nothing the state tries to do can mask that reality. Nor should it. If we as a society want to carry out executions, we should be willing to face the fact that the state is committing a horrendous brutality on our behalf....If we, as a society, cannot stomach the splatter from an execution carried out by firing squad, then we shouldn't be carrying out executions at all.”).

²¹⁹ 77 F.3d 301, 309 (9th Cir. 1996).

²²⁰ Tom McNichol, *Death by Nitrogen*, SLATE, http://www.slate.com/articles/news_and_politics/jurisprudence/2014/05/death_by_nitrogen_gas_will_the_new_method_of_execution_save_the_death_penalty.html (May 22, 2014); Josh Sanburn, *The Dawn of a New Form of Capital Punishment*, TIME, <http://time.com/3749879/nitrogen-gas-execution-oklahoma-lethal-injection/> (Apr. 17, 2015) (explaining that “[t]he method would likely consist of a gas mask that covers the head and neck, which would be filled with pure nitrogen from a nearby canister. That nitrogen would displace the oxygen, leading to death by oxygen deprivation....”).

²²¹ Seema K. Shah, *Experimental Execution*, *supra* note 6, at 188-189.

UNCERTAINTY & THE EIGHTH AMENDMENT

One set of objections to this line of argument is that there are many reasons to be more permissive in executions than in research, and it may be that importing risk standards from the research context would subject executions to inappropriately high standards. Many scholars have argued that protectionism in research is a deep problem, and that the regulation of research is overly paternalistic without sufficient justification.²²² Such arguments might suggest that the use of lower risk standards in research, particularly in research with vulnerable populations, is not pertinent to the capital punishment context. Though the standards in the lethal injection context might be much higher than we would permit in research, operationalizing what “a substantial risk of serious harm” actually means in terms of probability and magnitude of harm could still be informed by analysis done in the research context (especially given that is very little such guidance in existing case law).

Moreover, there are at least some reasons to be more risk-averse in the context of capital punishment than in research. Perhaps more importantly, informed consent of the subjects is obtained for high risk research, but not for executions. I have argued elsewhere that a form of consent could be implemented in the lethal injection context,²²³ though it is unclear that any states will take up this proposal. If a consenting adult gives valid informed consent to be exposed to risk in research, this takes away much of the normative force of the concern about the activity. For inmates who are not given choices or even full information about execution protocols, it is possible we should tolerate less risk. One possible response is to suggest that inmates convicted of capital crimes have transgressed sufficiently that they forfeit a right to consent to risks involved. If, as I have argued elsewhere, the risks are associated with experimentation that is not necessary to further the death penalty, then it is not clear why committing capital murder forfeits one’s right to give consent to be experimented upon. If, on the other hand, these risks are merely part of the chosen method of execution and not associated with experimentation, then that may suggest that informed consent is not a right that inmates can assert. At any rate, the absence of informed consent in experimental executions may be a reason to be more careful in terms of the risks imposed on inmates.

Another reason that to be more cautious about risk in research than in the capital punishment context is that that the justification for risk limits may be different. Some scholars have argued that the justification for risk limits in research is to maintain societal trust in the research enterprise, as this trust has been tested by numerous historical scandals involving

²²² See generally ALAN WERTHEIMER, *RETHINKING THE ETHICS OF CLINICAL RESEARCH: WIDENING THE LENS* (2010).

²²³ Shah, *supra* note 6, at 198-203.

UNCERTAINTY & THE EIGHTH AMENDMENT

researchers.²²⁴ Though it is not immediately apparent that this justification is applicable to capital punishment, consider the effects that botched executions may be having on public support for the death penalty. Botched executions have led many to question why capital punishment is retained in the U.S. Public support appears to be waning, and many legislators have turned against capital punishment for various reasons.²²⁵ It may be that death penalty supporters could learn from the response of the research community to scandals and find better ways to improve public confidence in capital punishment.

Some might respond that the reason public support has waned is inextricably tied to the fact that the abolitionists have made it difficult to obtain drugs, and has nothing to do with capital punishment itself. However, this type of argument neglects the fact that abolitionists have convinced others (pharmaceutical companies, European lawmakers, members of the public) to slow the supply of drugs for executions. If those parties have legitimate moral objections to the death penalty, they may have valid concerns about being complicit in a practice to which they object. Moreover, states have proceeded with executions without demonstrating much concern for maintaining the public's confidence. For instance, in the Lockett execution, a line was placed incorrectly, but this was not noticed and the execution proceeded.²²⁶ Only after the execution was botched and received significant attention did the state explicitly indicate that executions can be stopped midstream when problems arise—which seems like a basic protection that should have been in place already.²²⁷ The approaches states have taken in light of the drug shortages have failed to inspire confidence that they are trying to avoid risks of causing torturous deaths, as opposed to just trying to get the job done by any means necessary.

Finally, opponents to this proposal might also claim that these arguments are a back-door route to abolition. It is not entirely clear, however, that if lethal injection cannot proceed, executions will not take place. States that maintain the death penalty typically have alternatives laid out by statute other than lethal injection. The Supreme Court has never invalidated a method of execution as unconstitutional, so the Court may

²²⁴ Alex John London, *A Non-Paternalistic Model of Research Ethics and Oversight: Assessing the Benefits of Prospective Review*, 40 J. L. MED. & ETHICS 930, 944 (2012).

²²⁵ Julie Bosman, *Nebraska Bans Death Penalty, Defying a Veto*, N.Y. TIMES, A1 (May 28, 2015).

²²⁶ Eric Eckholm, *IV Misplaced in Oklahoma Execution, Report Says*, N.Y. TIMES, A14 (Sept. 5, 2014).

²²⁷ Glossip, 192 L. Ed. 2d at *771.

UNCERTAINTY & THE EIGHTH AMENDMENT

not have much precedent to object to states using firing squads or electric chairs. The arguments by death penalty proponents seem to be determined to let lethal injection executions continue, despite the many problems associated with their implementation. But if the goal is to continue to maintain the death penalty, lethal injection is hardly necessary, because there are other options states could use. Although Judge Kozinski has suggested these options may be less palatable to the general public, it is hard to imagine that a seamlessly-conducted firing squad would be harder to stomach than the reports of botched lethal injection executions. Moreover, as Judge Kozinski suggests, if the public cannot tolerate firing squads or other methods of execution, this may suggest that the reality of the death penalty offends evolving standards of decency,²²⁸ which is a position that has the sympathies of at least some members of the U.S. Supreme Court.²²⁹

CONCLUSION

I have argued that the Supreme Court in *Glossip* has chosen an approach to regulating risk and uncertainty that is far out of step with how risk is regulated in other arenas, both in terms of the standard used and its application to the current rate of error in executions by lethal injection that use drugs like midazolam. This approach makes it clear that the majority of the Court would simply prefer not to be involved in the current controversies over execution by lethal injection. Given the strict standard and interpretation of the standard laid out in *Glossip*, it is likely that the fewer legal battles will reach the Supreme Court in the future. Barring major change in terms of how states conduct executions, however, botched lethal injection executions are likely to continue, as will the larger debate about the constitutionality of the death penalty.

If the Court stays out of the fray, the action will turn to states that will have to decide how to proceed in the face of drug shortages and the possibility of other methods of execution. Though they can be fairly confident that any approaches they take will be upheld by the courts under the *Glossip* standard, states are still likely to struggle in various ways. Some states may still have difficulty in finding the drugs they need, and may be

²²⁸ Wood v. Ryan, 759 F.3d 1076, 1103 (9th Cir. 2014) (Kozinski, J., dissenting).

²²⁹ Glossip, 192 L. Ed. 2d at *793-794 (Breyer, J., dissenting) (“Nearly 40 years ago, this Court upheld the death penalty under statutes that, in the Court’s view, contained safeguards sufficient to ensure that the penalty would be applied reliably and not arbitrarily....The circumstances and the evidence of the death penalty’s application have changed radically since then. Given those changes, I believe that it is now time to reopen the question.”).

UNCERTAINTY & THE EIGHTH AMENDMENT

concerned about the possibility of botched executions with the use of drugs like midazolam. The alternatives have significant enough drawbacks that some states may, as Nebraska just did,²³⁰ decide to abolish the death penalty altogether. Abolitionist movements are likely to succeed in some states based on unease about botched executions, but not in others. Notably, at least three states currently have a moratorium (Pennsylvania, Oregon, and Washington) on the death penalty.²³¹ The fiscal challenges to the death penalty, given its high cost, may also play a role,²³² even if the role of the Supreme Court becomes more limited. Similarly, the Connecticut Supreme Court recently abolished the death penalty for those remaining on death row (after the legislature and Governor had passed a bill to repeal the death penalty for future offenses, citing multiple reasons for its decision.²³³ The Ninth Circuit is currently considering a challenge to the death penalty based on the arbitrariness of its imposition and the uncertainty that any inmate on California's death row faces about whether he or she will die from execution or natural causes, which call into question whether the death penalty can serve any legitimate penological purpose.²³⁴ Yet the fact that the states that retain the death penalty and those that have recently abolished it do not follow predictable patterns (such as a red state/blue state distinction)²³⁵ suggests that this coming change will be quite unpredictable. Although it is still likely that at least some states will

²³⁰ Bosman, *supra* note 223, at A1.

²³¹ Death Penalty Information Center, *States with and without the Death Penalty as of July 1, 2015*, <http://www.deathpenaltyinfo.org/states-and-without-death-penalty>. Although Colorado is listed as a state that has a moratorium in place, its governor indefinitely stayed the execution of the next-in-line inmate because of concerns about the death penalty, but did not actually declare a moratorium

²³² Ed Barnes, *Just or Not, Cost of Death Penalty Is a Killer for State Budgets*, FOX NEWS, <http://www.foxnews.com/us/2010/03/27/just-cost-death-penalty-killer-state-budgets/> (Mar. 27, 2010).

²³³ *State of Conn. v. Santiago*, slip op. (SC 17413) (to be officially released Aug. 25, 2015),

<https://www.jud.ct.gov/external/supapp/Cases/AROCr/CR318/318CR306.pdf> (holding that the imposition of the death penalty on those already on death row when it had been repealed violates evolving standards of decency and has no legitimate penological justification). The Connecticut Supreme Court raised a number of concerns, including racial bias in the administration of the death penalty and cost. (*See id.* at *74 (“In prospectively abolishing the death penalty, the legislature did not simply express the will of the people that it no longer makes sense to maintain the costly and unsatisfying charade of a capital punishment scheme in which no one ever receives the ultimate punishment.”)).

²³⁴ *Jones v. Davis*, Case No. 14-56373 (9th Cir. Aug. 31, 2015).

²³⁵ Death Penalty Information Center, *States with and without the Death Penalty as of July 1, 2015*, <http://www.deathpenaltyinfo.org/states-and-without-death-penalty>.

UNCERTAINTY & THE EIGHTH AMENDMENT

be holdouts and find other ways to conduct executions, such a future will bring piecemeal change to the death penalty landscape.

Despite the fact that a majority of the Supreme Court appears to be untroubled by the risk and uncertainty involved, it is likely that their failure to impose more stringent standards on executions by lethal injection will simply shift the battles over lethal injection to state governors' offices, legislators, and even prisons themselves. All of these stakeholders will have to ask themselves how much risk and uncertainty they are willing to tolerate to maintain capital punishment. If enough states are unwilling or unable to defend the risks associated with the death penalty to their legislators, in their courts, or in the court of public opinion, it may become clear that current standards of decency have evolved beyond the use of the death penalty in this country.