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USE OF THE DRUG PAVULON IN LETHAL INJECTIONS: CRUEL AND UNUSUAL?

Casey Lynne Ewart*

INTRODUCTION

The standard methods of execution used by American states have changed over time as technological and medical advances have revealed more “humane” ways of executing death row inmates. At various times in the history of this country, states have authorized the use of hanging, firing squad, electrocution, the gas chamber, and lethal injection.¹ Lethal injection is, by far, the most prevalent method used by the thirty-eight states that permit capital punishment today, as well as the federal government and the United States military.² As has happened with every method of execution used in recent American history, however, prisoners have begun to challenge the constitutionality of lethal injection under the Eighth Amendment’s ban on cruel and unusual punishments.³ One of the most disturbing claims being made is that the anesthetic used in most lethal injection cocktails wears off before the prisoner dies, leaving him with full sensory perception as a lethal drug is pumped into his veins.⁴ According to this theory, the prisoner’s outward appearance remains calm because he has been injected with a drug, usually pancuronium bromide (commonly known as pavulon), that paralyzes his body.⁵ These claims raise substantial questions about

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¹ Death Penalty Information Center, *Methods of Execution* [hereinafter Death Penalty Information Center], available at <http://deathpenaltyinfo.org/article.php?scid=8&did=245> (last visited Jan. 16, 2006).

² *Id.* According to the Death Penalty Information Center, New York’s death penalty statute was declared unconstitutional by the state’s Court of Appeals on June 24, 2004. *Id.* Despite that fact, this Note will continue to include New York in its analysis of states’ death penalty statutes and procedures.

³ See, e.g., *Beardslee v. Woodford*, 395 F.3d 1064 (9th Cir. 2005); *Reid v. Johnson*, 333 F. Supp. 2d 543 (E.D. Va. 2004); *Abdur’Rahman v. Bredesen*, 2005 Tenn. LEXIS 828 (Tenn. Oct. 17, 2005). The Eighth Amendment states: “Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.” U.S. CONST. amend. VIII.

⁴ See, e.g., *Reid*, 333 F. Supp. 2d at 551.

⁵ *Id.*

whether lethal injection is, in fact, more “humane” than other methods of execution (and whether a truly humane method of execution is even possible).

Section I of this Note explores the history of the death penalty in this country, including the crimes and categories of offenders that have been exempted from capital punishment, while Section II reviews the evolution of different methods of execution throughout history. Section III describes the relevant statutes and policies of each jurisdiction that permits lethal injection, including the drugs used in each jurisdiction’s lethal injection “cocktail,” as well as the requirements for technicians involved in administering lethal injections. Section IV explores medical research on the drug pavulon, including its effectiveness as a paralytic agent. Section V focuses on the use of pavulon in the lethal injection cocktail, describing the arguments of death penalty opponents and proponents, legal challenges made by death row inmates, and legislative responses to claims that pavulon makes lethal injection a cruel and unusual punishment. Section VI details possible alternatives to pavulon. Lastly, Section VII evaluates the merits of death row inmates’ challenges to pavulon and explores possible solutions to the lethal injection problem, as well as the question of whether it is even possible to have a truly “humane” method of execution.

I. A BRIEF HISTORY OF THE DEATH PENALTY IN THE UNITED STATES

A. Death Penalty Jurisprudence of the Supreme Court

While it has gradually whittled away the crimes and categories of offenders eligible for capital punishment, the Supreme Court of the United States has never held that the death penalty is, per se, unconstitutional under the Eighth Amendment.⁶ In *Trop v. Dulles*,⁷ the Supreme Court held that “the words of the [Eighth] Amendment are not precise, and . . . their scope is not static. The Amendment must draw its meaning from the evolving standards of decency that mark the progress of a maturing society.”⁸ Using that standard of review, the Court held in 1972 that all of the states’ death penalty statutes violated the Eighth Amendment because “this unique penalty . . . [was] so wantonly and so freakishly imposed.”⁹ In 1976, the Court upheld some of the states’ new death penalty statutes because they gave guidance to sentencing juries and included “safeguard[s] against arbitrariness and caprice.”¹⁰

⁶ *Gregg v. Georgia*, 428 U.S. 153, 187 (1976) (“We hold that the death penalty is not a form of punishment that may never be imposed, regardless of the circumstances of the offense, regardless of the character of the offender, and regardless of the procedure followed in reaching the decision to impose it.”).

⁷ 356 U.S. 86 (1958).

⁸ *Id.* at 100–01.

⁹ *Furman v. Georgia*, 408 U.S. 238, 310 (1972) (Stewart, J., concurring).

¹⁰ *Gregg*, 428 U.S. at 198.

B. Categories of Offenders Exempted from the Death Penalty

Since its decision in *Gregg*, the Court has held that states may not make the rape of an adult woman a capital crime.¹¹ Likewise, it has exempted the mentally insane,¹² the mentally retarded,¹³ and juveniles¹⁴ from eligibility for capital punishment.¹⁵

II. EVOLUTION OF METHODS OF EXECUTION

A. Early Methods

The death penalty is not a uniquely American phenomenon. “[S]ome scholars have maintained that the oldest reference to the death penalty is located in the Code of Hammurabi.”¹⁶ Over the ensuing centuries, such diverse methods as stoning, burning, crucifixion, impalement, drowning, live burial, the guillotine, and hanging have been used to execute those who committed any of a wealth of crimes punishable by death.¹⁷ American colonists who had come from England were already familiar with a wide range of crimes that could result in execution.¹⁸ According to author Stuart Banner, “Treason, murder, manslaughter, rape, robbery, burglary, arson, counterfeiting, theft — all were capital crimes in England. All became capital crimes in the American colonies as well.”¹⁹ The primary method of execution in colonial America was hanging,²⁰ and executions were usually held in public.²¹

¹¹ *Coker v. Georgia*, 433 U.S. 584 (1977). *Coker* focused specifically on the rape of adult women. *Id.* at 592. As a result, some states still have statutes authorizing capital punishment for the rape of a child. Melissa Meister, Note, *Murdering Innocence: The Constitutionality of Capital Child Rape Statutes*, 45 ARIZ. L. REV. 197, 216–17 (2003).

¹² *Ford v. Wainwright*, 477 U.S. 399 (1986).

¹³ *Atkins v. Virginia*, 536 U.S. 304 (2002).

¹⁴ *Roper v. Simmons*, 125 S. Ct. 1183 (2005).

¹⁵ In 1989, the Supreme Court held that it was constitutional to execute juvenile offenders who committed their crimes at the ages of sixteen or seventeen. *Stanford v. Kentucky*, 492 U.S. 361 (1989). In 2003, however, the Missouri Supreme Court found that, under the Eighth Amendment to the federal Constitution, it was unconstitutional to execute any such juvenile offenders. *Simmons v. Roper*, 112 S.W.3d 397 (Mo. 2003) (en banc). The United States Supreme Court granted certiorari in 2004. *Roper v. Simmons*, 124 S. Ct. 1171 (2004). On March 1, 2005, the Supreme Court reversed its decision in *Stanford*, finding that the Eighth Amendment’s ban on cruel and unusual punishments prohibited the execution of those who committed their crimes before the age of eighteen. *Roper v. Simmons*, 125 S. Ct. 1183 (2005).

¹⁶ Robert J. Sech, Note, *Hang ‘Em High: A Proposal for Thoroughly Evaluating the Constitutionality of Execution Methods*, 30 VAL. U. L. REV. 381, 387 (1995).

¹⁷ *Id.* at 387–90.

¹⁸ STUART BANNER, *THE DEATH PENALTY: AN AMERICAN HISTORY* 5 (2002).

¹⁹ *Id.*

²⁰ Sech, *supra* note 16, at 391.

²¹ BANNER, *supra* note 18, at 24.

B. Execution Methods in Post-Revolutionary America

1. Hanging

The American states continued to employ hanging as a primary method of execution from the time of the American Revolution until the nineteenth century.²² During the early- to mid-nineteenth century, the public's focus shifted from punishment to rehabilitation, and "[i]t was during this era that the great custodial institutions — penitentiaries, insane asylums, and almshouses — were built."²³ It was at this time that executions began to fall out of favor with the general public: because execution by hanging required the hangman to possess a certain degree of experience and skill, many hangings were bungled.²⁴

During a typical hanging in New York, the executioner would place the noose around the neck of the condemned, positioning the knot under his left ear.²⁵ The noose was connected to a hanging metal weight that was approximately twice as heavy as the condemned prisoner.²⁶ Upon commencement of the execution, the weight was lowered rapidly and the prisoner's body was "suddenly and violently yanked into the air."²⁷ The goal of this technique was to snap the criminal's neck, killing him instantly.²⁸ This method of execution presented numerous potential problems, however, because if the knot was not positioned properly, the condemned would slowly strangle over the course of twenty to thirty minutes.²⁹ On the other hand, if too much weight was used to yank the prisoner into the air, the condemned's head could be torn off by the force of the rope around his neck.³⁰

2. Electric Chair

As a result of growing public distaste with hanging, people began to search for a new, more "humane" way to execute criminals.³¹ Scientists eventually began to

²² Sech, *supra* note 16, at 391.

²³ RICHARD MORAN, EXECUTIONER'S CURRENT: THOMAS EDISON, GEORGE WESTINGHOUSE, AND THE INVENTION OF THE ELECTRIC CHAIR 64 (2002).

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.* at 64–65.

³⁰ *Id.* at 65.

³¹ According to the Death Penalty Information Center, hanging is still an authorized punishment in two states: New Hampshire (if lethal injection cannot be given) and Washington. Death Penalty Information Center, *supra* note 1. In addition, although lethal injection is the primary method of execution in the state of Delaware, Delaware law provides that "[i]f the execution of the sentence of death [by lethal injection] is held unconstitutional by a court of

focus on the use of electricity as a new method of execution.³² In the March 24, 1883, edition of *Scientific American*, an editorial entitled "Killing Cattle by Electricity" asserted "that until capital punishment was abolished, death by 'judicial lightning' should be adopted in place of the 'hideous violence' of hanging."³³

New York was the first state to adopt electrocution as a method of execution, passing the Electrical Execution Act in 1888.³⁴ The first man to be put to death in the electric chair was William Kemmler.³⁵ His execution was rife with problems. Once the flow of electricity started, "[Kemmler's] complexion turned ashen. 'Death spots' appeared on his skin."³⁶ Kemmler was declared dead by one of the doctors present, and the warden ordered that the electricity be turned off.³⁷ Meanwhile, Dr. Alfred P. Southwick pronounced the experiment a success, saying "'There is the culmination of ten years' work and study. We live in a higher civilization from this day."³⁸ The witnesses of the execution soon realized, however, that Kemmler was still alive and begged the warden to turn the electricity back on.³⁹

Having failed to kill Kemmler with the first round of electricity, the executioner threw the switch for a second time, sending a much higher voltage through the prisoner's body.⁴⁰ Author Richard Moran described the gruesome scene in the execution chamber, writing that "[f]roth oozed out of Kemmler's strapped mouth. The small blood vessels under his skin began to rupture. Blood trickled down his face and arms. . . . The awful smell of burning flesh filled the death chamber. Kemmler's body first smoldered and then caught fire."⁴¹ After prison officials cut off power to the generator for the second time, it was plain to see that Kemmler had finally died.⁴² The entire process had taken eight minutes.⁴³ Amazingly, as the witnesses shuffled out of a death chamber that reeked of burnt flesh, one of the doctors present proclaimed that it was clear that Kemmler had not suffered any pain during his execution.⁴⁴

While prisons gradually learned from their mistakes and improved the techniques involved in electrocuting prisoners, executions were still botched "frequently

competent jurisdiction, then punishment of death shall, in all cases, be inflicted by hanging by the neck." DEL. CODE ANN. tit. 11, § 4209(f) (2002).

³² MORAN, *supra* note 23, at 69.

³³ *Id.*

³⁴ *Id.* at 86.

³⁵ *Id.* at xviii.

³⁶ *Id.* at 15.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.* at 15–16.

⁴² *Id.* at 16.

⁴³ *Id.*

⁴⁴ *Id.*

and dramatically,” often as a result of faulty equipment.⁴⁵ At least five attempted electrocutions between 1983 and 1991 encountered serious problems.⁴⁶

3. Lethal Gas

As it had with hanging, public dissatisfaction with electrocution led inventors to search for a new method of execution.⁴⁷ The gas chamber was first introduced in Nevada in 1924 and is still available in several states.⁴⁸ When a prisoner enters the gas chamber, he is strapped into a chair with holes in it.⁴⁹ A bag of sodium cyanide pellets hangs above a bowl containing water and sulfuric acid that has been placed beneath the chair.⁵⁰ On the warden’s signal, the pellets are dropped into the water, causing the release of hydrogen cyanide gas, which wafts up through the holes in the prisoner’s chair.⁵¹ The condemned inmate loses consciousness soon after he inhales the gas.⁵² “‘At first there is evidence of extreme horror, pain, and strangling. The eyes pop. The skin turns purple and the victim begins to drool. It is a horrible sight,’ [one former warden] testified.”⁵³

In 1996, the Ninth Circuit Court of Appeals affirmed a decision by a judge from the Northern District of California that California’s gas chamber violates the Eighth Amendment.⁵⁴ In doing so, the judge “entered extensive findings of fact which detail the pain inflicted by cyanide gas poisoning.”⁵⁵ The judge based her findings on the opinions of expert witnesses, scientific publications, and accounts of those

⁴⁵ RANDALL COYNE & LYN ENTZEROTH, CAPITAL PUNISHMENT AND THE JUDICIAL PROCESS 84 (2d ed. 2001) (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991).

⁴⁶ *Id.* Despite continuing problems with execution by electrocution, the electric chair is still theoretically available in ten states: Alabama, Arkansas, Florida, Illinois (if lethal injection is ever found to be unconstitutional), Kentucky, Nebraska (as its primary method of execution), Oklahoma (if lethal injection is ever found to be unconstitutional), South Carolina, Tennessee, and Virginia. Death Penalty Information Center, *supra* note 1.

⁴⁷ *Gray v. Lucas*, 463 U.S. 1237, 1246 (1983) (Marshall, J., dissenting).

⁴⁸ COYNE & ENTZEROTH, *supra* note 45, at 85 (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991).

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Fierro v. Gomez*, 77 F.3d 301 (9th Cir. 1996), *vacated* 519 U.S. 918 (1996). The Ninth Circuit’s judgment was vacated and remanded to the district court for reconsideration in light of the passage of California Penal Code § 3604, which allowed prisoners to choose between lethal gas and lethal injection. *Gomez v. Fierro*, 519 U.S. 918 (1996).

⁵⁵ Meghan S. Skelton, *Lethal Injection in the Wake of Fierro v. Gomez*, 19 T. JEFFERSON L. REV. 1, 25 (1997).

who had witnessed executions by lethal gas.⁵⁶ The district court judge's opinion found that "inhalation of cyanide gas leads to tetany, a painful, strained muscular contraction that can be so severe as to arch the body backwards like a bridge, with sufficient force to compress and fracture vertebrae,"⁵⁷ which, according to the expert opinions and scientific literature studied by the judge, would be painful to a prisoner who was still conscious.⁵⁸ Ultimately, the court found that when condemned prisoners are executed with lethal gas, they retain consciousness for "several minutes," all the while experiencing "excruciating pain."⁵⁹ Despite the Ninth Circuit's holding, however, the United States Supreme Court has never held any common method of execution — hanging,⁶⁰ firing squad,⁶¹ electrocution,⁶² lethal gas,⁶³ or lethal injection⁶⁴ — to be unconstitutional.

4. Firing Squad

The firing squad, while rarely used, is still theoretically allowed in three states: Idaho, Oklahoma (if both lethal injection and electrocution are found to be unconstitutional), and Utah (for inmates who chose this before it was eliminated as an acceptable option for execution).⁶⁵ One of the last prisoners to be executed by firing squad was Gary Gilmore in 1977.⁶⁶ Gilmore was strapped to a chair, after which officials placed a black hood over his head and pinned a white target over his heart.⁶⁷ Five riflemen stood at a distance of twenty feet, waiting to fire on Gilmore.⁶⁸ One of the rifles, however, was loaded with a blank so the executioners could not know who actually fired the fatal shot.⁶⁹ The shooters then aimed and fired, killing Gilmore.⁷⁰

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Campbell v. Wood*, 18 F.3d 662 (9th Cir. 1994), *cert. denied*, 511 U.S. 1119 (1994).

⁶¹ *Wilkerson v. Utah*, 99 U.S. 130 (1879).

⁶² *In re Kemmler*, 136 U.S. 436 (1890).

⁶³ *Gray v. Lucas*, 710 F.2d 1048, 1061 (5th Cir. 1983), *cert. denied*, 463 U.S. 1237 (1983). Execution by lethal gas is still available, under certain circumstances, in five states: Arizona, California, Maryland, Missouri, and Wyoming (if lethal injection is ever found to be unconstitutional). Death Penalty Information Center, *supra* note 1.

⁶⁴ *LaGrand v. Stewart*, 133 F.3d 1253, 1265 (9th Cir. 1998), *cert. denied*, 525 U.S. 971 (1998).

⁶⁵ Death Penalty Information Center, *supra* note 1.

⁶⁶ COYNE & ENTZEROTH, *supra* note 45, at 83 (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

Criminals who are executed by firing squad die “as a result of blood loss caused by a rupture of the heart or a large blood vessel, or tearing of the lungs.”⁷¹ The condemned eventually succumbs to a loss of blood supply to the brain.⁷² If the members of the firing squad miss their mark, the condemned inmate will bleed to death slowly.⁷³ According to authors Randall Coyne and Lyn Entzeroth, it took Gary Gilmore two minutes to die.⁷⁴

5. Lethal Injection

Having realized that the electric chair and the gas chamber made executions excessively painful for prisoners and disturbing for witnesses to watch, many death penalty states began switching to the use of lethal injection.⁷⁵ South Carolina State Representative Harry Hallman, who pushed for the state to switch from electrocution to lethal injection, believed that lethal injection should be used ““for humanitarian reasons.””⁷⁶ In the opinion of author Meghan S. Skelton, lethal injection has become the method of choice because the process better resembles a medical procedure than an execution.⁷⁷ According to Skelton, states use lethal injection “in order to obfuscate the realities of execution.”⁷⁸ Currently, a majority of death penalty states authorize lethal injection as a form of capital punishment.⁷⁹

Lethal injection had been conceptualized for years before it was actually adopted.⁸⁰ Dr. Stanley Deutsch “perfected” the procedure in 1977.⁸¹ In the late 1970s, a state senator from Oklahoma was searching for a method of execution to replace the

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Skelton, *supra* note 55, at 4.

⁷⁶ *Id.* at 4–5 (quoting Lorrie Grant, *Lethal Injection Gains Favor as Execution Method*, REUTERS WORLD SERV., Mar. 22, 1995).

⁷⁷ *Id.* at 2.

⁷⁸ *Id.*

⁷⁹ Lethal injection is currently available for use in the United States military, the federal government, and the following thirty-six states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, and Wyoming. New York also authorizes the use of lethal injection, but the New York Court of Appeals ruled in June 2004 that the state’s death penalty statute violated the state constitution. Death Penalty Information Center, *supra* note 1.

⁸⁰ COYNE & ENTZEROOTH, *supra* note 45, at 86 (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991).

⁸¹ *Id.*

state's aging electric chair.⁸² Dr. Deutsch claimed to have found "a way to administer drugs through an intravenous drip so as to cause death rapidly and without pain."⁸³ According to Dr. Deutsch, lethal injection was a "rapid, pleasant way of producing unconsciousness."⁸⁴ Lethal injection has become the most common method of execution in the country because it makes the procedure easier for witnesses to watch and is supposed to make the execution more bearable for the condemned inmate.⁸⁵

Texas followed Oklahoma's lead, adopting lethal injection only one day later.⁸⁶ The first prisoner to die by lethal injection was Charles Brooks, Jr., who was executed in Texas in 1982.⁸⁷ Author Jacob Weisberg detailed the 1991 lethal injection of Lawrence Lee Buxton, describing the prisoner as lying on a gurney with a needle inserted in his arm.⁸⁸ Tubes connected to the needle were used to administer several substances intravenously, the first of which was a non-lethal saline solution.⁸⁹ According to an anesthesiologist at the University of Texas in Dallas, Buxton was given twice the normal dose of sodium thiopental, an anesthetic that puts people to sleep fairly rapidly.⁹⁰ Once Buxton was unconscious, he was injected with pavulon, a muscle relaxant that paralyzes the body.⁹¹ Buxton received ten times the normal dose of pavulon, which began to stop his breathing.⁹² While the prisoner's inability to breathe would have killed him in approximately ten minutes, prison officials expedited Buxton's death by giving him a large dose of potassium chloride, a drug that will stop a person's heart within ten seconds.⁹³

Lethal injection is supposed to be efficient and relatively painless. Problems with this procedure have emerged, however, since doctors are ethically prohibited from actively participating in executions.⁹⁴ As a result, "[lethal] injections are often performed by incompetent or inexperienced technicians. If a death worker injects the drugs into muscle instead of a vein, or if the needle becomes clogged, extreme pain can result."⁹⁵ One such example of a botched lethal injection took place in

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ AMNESTY INT'L USA, LETHAL INJECTION: THE MEDICAL TECHNOLOGY OF EXECUTION 6 (Jan. 1998).

⁸⁷ *Id.* at 8.

⁸⁸ COYNE & ENTZEROTH, *supra* note 45, at 86 (quoting Jacob Weisberg, *This Is Your Death*, NEW REPUBLIC, July 1, 1991).

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.* at 87.

⁹⁵ *Id.*

1984, when James Autry was executed in Texas.⁹⁶ According to *Newsweek*, it took Autry ten minutes to die, during which time he was able to move and complain of pain.⁹⁷ Problems can also occur when the government attempts to execute former intravenous drug users by lethal injection because their veins are often damaged.⁹⁸ It can be difficult for technicians performing the injections to find acceptable veins.⁹⁹ A prime example of problems this type of situation can cause was the execution of Stephen Morin in Texas.¹⁰⁰ Because Morin was a former heroin user, the technicians performing the procedure were unable to find a suitable vein and were forced to stick Morin's arms with needles for forty-one minutes.¹⁰¹

In July 1980, the American Medical Association's House of Delegates adopted a resolution stating: "A physician, as a member of a profession dedicated to the preservation of life when there is hope of doing so, should not be a participant in a legally authorized execution,"¹⁰² though he "may make a determination or certification of death as currently provided by law in any situation."¹⁰³ The ethical inability of medical professionals to assist in executions, especially in the case of lethal injections, raises serious questions about the ability of prison officials to provide a problem-free, relatively painless execution for death row inmates.

In a novel challenge to lethal injection, several death row inmates in Texas and Oklahoma filed suit in an attempt to get the Food and Drug Administration (FDA) to prevent their execution by lethal injection.¹⁰⁴ The prisoners argued that the drugs to be used in the lethal injection cocktail had not been approved by the FDA for use in executions of human subjects.¹⁰⁵ While this challenge ultimately failed, it represented the beginning of a series of legal challenges to lethal injection that has culminated in recent suits by death row inmates claiming that the use of the drug pavulon makes lethal injection a cruel and unusual punishment.

III. STATE-BY-STATE POLICIES AND PROCEDURES FOR EXECUTION BY LETHAL INJECTION

There exist no uniform, nationwide standards for the drugs to be used in lethal injections, the procedures states must follow in executing inmates by lethal injection, or the ways in which a state's capital punishment policies and procedures are

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.* at 106-07.

¹⁰³ *Id.* at 107.

¹⁰⁴ *Heckler v. Chaney*, 470 U.S. 821 (1985).

¹⁰⁵ AMNESTY INT'L USA, *supra* note 86, at 22.

made available to the public (if they are made public at all). As such, even though most states appear to have similar death penalty laws and use similar drugs in their executions, it is often difficult to determine the specific procedures that each state follows.¹⁰⁶ As a result, the information in the following section has been culled from a variety of sources, including state statutes, states' Department of Corrections web-sites, court cases, and news reports.

Under Alabama state law, the prison's warden acts as the executioner, although "[i]n the case of execution by lethal injection, the warden . . . may designate an employee of the unit to administer the lethal injection."¹⁰⁷ Likewise,

a person authorized by state law to prescribe medication and designated by the Department of Corrections may prescribe the drug or drugs necessary to compound a lethal injection. Notwithstanding any law to the contrary, a person authorized by state law to prepare, compound, or dispense medication and designated by the Department of Corrections may prepare, compound, or dispense a lethal injection. For purposes of this section, prescription, preparation, compounding, dispensing, and administration of a lethal injection shall not constitute the practice of medicine, nursing, or pharmacy.¹⁰⁸

The Arizona State Constitution states that "lethal injection or lethal gas shall be administered under such procedures and supervision as prescribed by law. The execution shall take place within the limits of the State prison."¹⁰⁹ Arizona law prescribes that "[t]he identity of executioners and other persons who participate or perform ancillary functions in an execution and any information contained in records that would identify those persons is confidential and is not subject to disclosure."¹¹⁰ Likewise, "[i]f a person who participates or performs ancillary functions in an execution is licensed by a board, the licensing board shall not suspend or revoke the person's license as a result of the person's participation in an execution."¹¹¹ On the day of execution,

¹⁰⁶ Deborah W. Denno, *When Legislatures Delegate Death: The Troubling Paradox Behind State Uses of Electrocutation and Lethal Injection and What It Says About Us*, 63 OHIO ST. L.J. 63, 116 (2002) ("One of the most striking aspects of studying lethal injection protocols concerns the sheer difficulty involved in acquiring them"). It is also helpful to note that "[s]odium thiopental also is known as thiopental sodium or its brand name, sodium pentothal. Pancuronium bromide also is commonly referred to as its brand name, pavulon. States use all of these names in their statutes." *Id.* at 146, tbl. 11 n.***.

¹⁰⁷ ALA. CODE § 15-18-82(c) (2002).

¹⁰⁸ *Id.* § 15-18-82.1(f).

¹⁰⁹ ARIZ. CONST. art. XXII, § 22(A).

¹¹⁰ ARIZ. REV. STAT. ANN. § 13-704(C) (1998).

¹¹¹ *Id.* § 13-704(D).

[i]nmates executed by lethal injection are brought into the injection room a few minutes prior to the appointed time of execution. He/she is then strapped to a Gurney-type bed and two (2) sets of intravenous tubes are inserted — one (1) in each arm. The three (3) drugs utilized include: Sodium Pentothal (a sedative intended to put the inmate to sleep), Pavulon (stops breathing and paralyzes the muscular system) and Potassium Chloride (causes the heart to stop). Death by lethal injection is not painful and the inmate goes to sleep prior to the fatal effects of the Pavulon and Potassium Chloride.¹¹²

Arkansas law dictates that lethal injection is “to be administered by a continuous intravenous injection of a lethal quantity of an ultra-short-acting barbiturate in combination with a chemical paralytic agent until the defendant’s death is pronounced according to accepted standards of medical practice.”¹¹³ The decisions about which drugs to use and what procedures to follow are left to the director of the Department of Corrections.¹¹⁴ State law also requires that “the Department of Correction official in charge of medical services or his or her designee” should be present at the execution.¹¹⁵ For inmates on California’s death row, “[t]he punishment of death shall be inflicted . . . by an intravenous injection of a substance or substances in a lethal quantity sufficient to cause death, by standards established under the direction of the Department of Corrections.”¹¹⁶ Once a condemned inmate enters the death chamber,

[t]he inmate is connected to a cardiac monitor which is connected to a printer outside the execution chamber. An IV is started in two usable veins and a flow of normal saline solution is administered at a slow rate. [One line is held in reserve in case of a blockage or malfunction in the other.]¹¹⁷

California uses a lethal injection cocktail that includes “5.0 grams of sodium pentothal in 20–25 cc of diluent,” “50 cc of pancuronium bromide,” and “50 cc of potassium chloride.”¹¹⁸ According to the California Department of Corrections,

¹¹² Ariz. Dep’t of Corrections, *Execution Information*, at <http://www.adc.state.az.us/prisons/florenceHist.htm#EXECUTION> (last visited Nov. 25, 2004).

¹¹³ ARK. CODE ANN. § 5-4-617(a)(1) (West 1983).

¹¹⁴ *Id.* § 5-4-617(a)(2).

¹¹⁵ *Id.* § 16-90-502(d)(2) (1999).

¹¹⁶ CAL. PENAL CODE § 3604(a) (West 1996).

¹¹⁷ Cal. Dep’t of Corrections and Rehabilitation, *Lethal Injection Procedures: Last 24 Hours*, at <http://www.cya.ca.gov/ReportsResearch/lethalInjection.html> (last visited Jan. 17, 2006) (second alteration in original).

¹¹⁸ Cal. Dep’t of Corrections and Rehabilitation, *Lethal Injection Procedures: The Execution*, at <http://www.cya.ca.gov/ReportsResearch/lethalInjection.html> (last visited Jan. 16, 2006).

“[e]ach chemical is lethal in the amounts administered.”¹¹⁹ “At the warden’s signal, sodium pentothal is administered, then the line is flushed with sterile normal saline solution. This is followed by pancuronium bromide, a saline flush, and finally, potassium chloride. As required by the California Penal Code, a physician is present to declare when death occurs.”¹²⁰

In Colorado, the law states that executions “shall be performed in the room or place by a person selected by the executive director [of the Department of Corrections] and trained to administer intravenous injections. Death shall be pronounced by a licensed physician or a coroner according to accepted medical standards.”¹²¹ On the day of execution, prison personnel “insert two intravenous catheters into appropriate veins in the inmate’s arms, one to deliver the lethal agents and the other to serve as a back-up in the event of injection failure into the primary catheter.”¹²² Two members of the Department of Corrections’ staff, the “injection team,”

administer the chemical agents according to the Department’s lethal injection procedures, which provides the delivery of a lethal solution of sodium pentothal, pancuronium bromide, and potassium chloride. A saline solution is injected following each chemical injection. Anonymity is achieved in the execution process by requiring the injection team members to alternate in rendering each injection and by marking the chemical bottles by number only.¹²³

Connecticut state law provides that “[t]he method of inflicting the punishment of death shall be by continuous intravenous injection of a substance or substances in a quantity sufficient to cause death, in accordance with procedures prescribed by the Commissioner of Correction in consultation with the Commissioner of Public Health.”¹²⁴ With regard to the personnel involved in the actual execution, Department of Correction policy provides that

[t]he Director of Programs and Treatment . . . shall ensure, to the satisfaction of a Connecticut licensed and practicing physician, that a person or persons is appropriately trained and qualified to act as executioner. . . . The Director of Programs and Treatment or designee shall ensure, to the satisfaction of a Connecticut

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ COLO. REV. STAT. ANN. 18-1.3-1204 (West 2004).

¹²² Colo. Dep’t of Corrections, *Execution Day*, at <http://www.doc.state.co.us/DeathRow/deathrow.asp> (last visited Jan. 17, 2006).

¹²³ *Id.*

¹²⁴ CONN. GEN. STAT. ANN. § 54-100(a) (West 1997).

licensed and practicing physician, that a person or persons is appropriately trained and qualified to insert an intravenous catheter or catheters into an appropriate vein or veins of the inmate. It shall be the Director of Programs and Treatment[']s responsibility to ensure that a physician qualified to certify death is present at the time of execution.¹²⁵

The execution takes place in three steps. The inmate first receives a dose of 2,500 milligrams of Thiopental Sodium "(a lethal dose), in 50 [milliliters] of clear . . . Sodium Chloride 0.9% solution of an approximate concentration of . . . 5%."¹²⁶ Next, the executioner administers 100 milligrams of Pancuronium Bromide.¹²⁷ Lastly, the prisoner receives 120 milliequivalents of Potassium Chloride.¹²⁸

Under the laws of the State of Delaware:

Punishment of death shall, in all cases, be inflicted by intravenous injection of a substance or substances in a lethal quantity sufficient to cause death and until such person sentenced to death is dead, and such execution procedure shall be determined and supervised by the Commissioner of the Department of Correction.¹²⁹

The law likewise provides that the administration of drugs for the purposes of lethal injection does not qualify as the practice of medicine and that "any pharmacist or pharmaceutical supplier is authorized to dispense drugs to the Commissioner or the Commissioner's designee, without prescription, for carrying out the provisions of this section, notwithstanding any other provision of law."¹³⁰

In Florida, the warden of the state prison chooses the executioner.¹³¹ "Information which identifies an executioner, or any person prescribing, preparing, compounding, dispensing, or administering a lethal injection" is confidential under state law.¹³²

Georgia law states that "[t]he Department of Corrections shall provide a place for execution of the death sentence and all necessary apparatus, machinery, and

¹²⁵ State of Conn. Dep't of Corrections, *Administration of Capital Punishment*, Directive 6.15 §§ 5(C)(2)–5(C)(4) (effective Oct. 19, 2004), available at <http://www.ct.gov/doc/lib/doc/pdf/ad/ad0615.pdf> (last visited Jan. 16, 2006).

¹²⁶ *Id.* § 11(D)(1).

¹²⁷ *Id.* § 11(D)(2).

¹²⁸ *Id.* § 11(D)(3).

¹²⁹ DEL. CODE ANN. tit. 11, § 4209(f) (2002).

¹³⁰ *Id.*

¹³¹ FLA. STAT. ANN. § 922.10 (West 2003).

¹³² *Id.* § 945.10(1)(g).

appliances for inflicting the penalty of death.”¹³³ “[T]he superintendent of the state correctional institution or a deputy superintendent thereof, at least three executioners, two physicians to determine when death supervenes, and other correctional officers, assistants, technicians, and witnesses as determined by the commissioner of corrections” are required to be present at the execution of a condemned prisoner.¹³⁴ In Georgia, the “prescription, preparation, compounding, dispensing, or administration of a lethal injection authorized by a sentence of death by a court of competent jurisdiction shall not constitute the practice of medicine or any other profession relating to health care which is subject by law to regulation, licensure, or certification.”¹³⁵

As in Georgia, Idaho law specifies that “any infliction of the punishment of death by administration of the required lethal substance or substances in the manner required by this section shall not be construed to be the practice of medicine”¹³⁶ On the day of execution,

[t]he punishment of death shall be inflicted by continuous, intravenous administration of a lethal quantity of an ultra-short-acting barbiturate in combination with a chemical paralytic agent until death is pronounced by a physician . . . in accordance with accepted medical standards. The director of the department of corrections shall determine the substance or substances to be used and the procedures to be used in any execution¹³⁷

The language of Illinois’s death penalty statute is very similar to that of Idaho’s, stating that

[a] defendant sentenced to death shall be executed by an intravenous administration of a lethal quantity of an ultrashort-acting barbiturate in combination with a chemical paralytic agent and potassium chloride or other equally effective substances sufficient to cause death until death is pronounced by a coroner who is not a licensed physician.¹³⁸

The Illinois statute also provides that

¹³³ GA. CODE ANN. § 17-10-44 (2000).

¹³⁴ *Id.* § 17-10-41.

¹³⁵ *Id.* § 17-10-38(c).

¹³⁶ IDAHO CODE ANN. § 19-2716 (1982).

¹³⁷ *Id.*

¹³⁸ 725 ILL. COMP. STAT. ANN. 5/119-5(a)(1) (LexisNexis 2003).

the identity of executioners and other persons who participate or perform ancillary functions in an execution and information contained in records that would identify those persons shall remain confidential, shall not be subject to disclosure, and shall not be admissible as evidence or be discoverable in any action of any kind in any court or before any tribunal, board, agency, or person. In order to protect the confidentiality of persons participating in an execution, the Director of Corrections may direct that the Department make payments in cash for such services.¹³⁹

According to Indiana law, “[t]he punishment of death shall be inflicted by intravenous injection of a lethal substance or substances into the convicted person: (1) [i]n a quantity sufficient to cause the death of the convicted person; and (2) [u]ntil the convicted person is dead.”¹⁴⁰

In Kansas, the death penalty is carried out by injecting the condemned with lethal substances “in a quantity sufficient to cause death in a swift and humane manner.”¹⁴¹ It is the job of the Secretary of Corrections to oversee the execution and to choose the executioners, who should remain anonymous under Kansas law.¹⁴² While it is the duty of the Secretary of Corrections to choose the substances to be administered, “[t]he secretary of health and environment shall certify to the secretary of corrections that the substance or substances selected by the secretary of corrections will result in death in a swift and humane manner.”¹⁴³ According to the Kansas Criminal Law Handbook, “[a] panel consisting of a pharmacologist, a toxicologist and an anesthesiologist must be appointed to advise the secretary regarding these duties.”¹⁴⁴

Like in many other states, Kentucky’s death penalty law states that “every death sentence shall be executed by continuous intravenous injection of a substance or combination of substances sufficient to cause death. The lethal injection shall continue until the prisoner is dead.”¹⁴⁵ The law also includes the caveat that “[n]o physician shall be involved in the conduct of an execution except to certify cause of death provided that the condemned is declared dead by another person.”¹⁴⁶ According to a news story reporting on challenges to Kentucky’s lethal injection procedure, the state executes inmates by

¹³⁹ *Id.* at 5/119-5(e).

¹⁴⁰ IND. CODE ANN. §§ 35-38-6-1(a)(1)-(a)(2) (LexisNexis 2002).

¹⁴¹ KAN. STAT. ANN. § 22-4001(a) (1999).

¹⁴² *Id.* § 22-4001(b).

¹⁴³ *Id.* § 22-4001(c).

¹⁴⁴ KAN. CRIM. LAW HANDBOOK § 14.47 (1997).

¹⁴⁵ KY. REV. STAT. ANN. § 431.220(1) (LexisNexis 1998).

¹⁴⁶ *Id.* § 431.220(3).

first injecting the condemned person with two grams of sodium pentothal, also called thiopental, a short-acting barbiturate designed to render the person unconscious.

Then comes saline to clear the injection tubes; pancurium [sic] bromide, also called pavulon, which [the inmates' lawsuit] said paralyzes muscles but does not affect awareness; saline again; and finally potassium chloride, a chemical to stop the heart. The process is automated once the executioner starts it.¹⁴⁷

Louisiana defines lethal injection as "the intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead."¹⁴⁸

"The manner of inflicting the punishment of death [in Maryland] shall be the continuous intravenous administration of a lethal quantity of an ultrashort-acting barbiturate or other similar drug in combination with a chemical paralytic agent until a licensed physician pronounces death according to accepted standards of medical practice."¹⁴⁹ With regards to medical personnel involved in executions, state law dictates that "[t]he administration of the lethal substances required by this section [of the statute] is not the practice of medicine."¹⁵⁰

Under Mississippi law,

[t]he manner of inflicting the punishment of death shall be by continuous intravenous administration of a lethal quantity of an ultra short-acting barbiturate or other similar drug in combination with a chemical paralytic agent until death is pronounced by the county coroner where the execution takes place or by a licensed physician according to accepted standards of medical practice.¹⁵¹

The state executioner and the Commissioner of Corrections are responsible for the logistics of the execution.¹⁵² Like many other states, Mississippi does not consider participation in an execution to be the practice of medicine.¹⁵³ Similarly, the law states that "[a]ny pharmacist is authorized to dispense drugs to the state executioner

¹⁴⁷ Bill Estep, *Suit Filed Against Kentucky's Method of Lethal Injection*, LEXINGTON HERALD-LEADER (Lexington, Ky.), Aug. 13, 2004, at A1.

¹⁴⁸ LA. REV. STAT. ANN. § 15:569(B) (1991).

¹⁴⁹ MD. CODE ANN., CORR. SERVS. § 3-905(a) (LexisNexis 1999).

¹⁵⁰ *Id.* § 3-905(b)(1).

¹⁵¹ MISS. CODE ANN. § 99-19-51 (West 1998).

¹⁵² *Id.* § 99-19-53 (West 1984).

¹⁵³ *Id.*

without a prescription for the purpose of [lethal injections].”¹⁵⁴ State law also dictates that it is the governor who selects the state executioner.¹⁵⁵

The Director of the Missouri Department of Corrections is authorized by law to provide “the necessary appliances for carrying into execution the death penalty by means of the . . . administration of lethal injection.”¹⁵⁶

The warden of the Montana state prison is responsible for overseeing executions.¹⁵⁷ The warden selects the executioner, although, under state law, “[t]he identity of the executioner must remain anonymous. Facts pertaining to the selection and training of the executioner must remain confidential.”¹⁵⁸ The executioner must be “trained to administer a lethal injection. The person administering the injection need not be a physician, registered nurse, or licensed practical nurse licensed or registered under the laws of [Montana] or any other state.”¹⁵⁹

Nevada law states that “[t]he judgment of death must be inflicted by an injection of a lethal drug.”¹⁶⁰ The director of the Department of Corrections is responsible for choosing the “drug or combination of drugs to be used for the execution after consulting with the state health officer.”¹⁶¹ State law also allows the director of the Department of Corrections to “[i]nvite a competent physician, the county coroner, [and] a psychiatrist” to attend the execution.¹⁶²

In New Hampshire, executions are carried out through the “continuous, intravenous administration of a lethal quantity of an ultrashort-acting barbiturate in combination with a chemical paralytic agent until death is pronounced by a licensed physician according to accepted standards of medical practice.”¹⁶³ The Commissioner of Corrections determines the substances and procedures to be used during the execution¹⁶⁴ in addition to selecting the executioner.¹⁶⁵ The executioner, however, “need not be a physician, registered nurse, or licensed practical nurse, licensed or registered under the laws of this or any other state.”¹⁶⁶ According to a news story from January 2004, “New Hampshire ha[d] no one on its death row. While New Hampshire law provides for death by lethal injection, it has no facilities for conducting the

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ MO. ANN. STAT. § 546.720 (West 1990).

¹⁵⁷ MONT. CODE ANN. § 46-19-103(5) (1999).

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* § 46-19-103(6)(a).

¹⁶⁰ NEV. REV. STAT. ANN. § 176.355(1) (LexisNexis 2001).

¹⁶¹ *Id.* § 176.355(2)(b).

¹⁶² *Id.* § 176.355(2)(e).

¹⁶³ N.H. REV. STAT. ANN. § 630:5(XIII) (1990).

¹⁶⁴ *Id.* § 630:5(XIV).

¹⁶⁵ *Id.* § 630:5(XV).

¹⁶⁶ *Id.*

procedure.”¹⁶⁷ A spokesman for the state’s Department of Corrections said, however, that the state could prepare facilities if needed.¹⁶⁸

Executions in New Jersey are “imposed by continuous, intravenous, administration until the person is dead of a lethal quantity of an ultrashort-acting barbiturate in combination with a chemical paralytic agent in a quantity sufficient to cause death.”¹⁶⁹ Before the lethal drugs are administered, “the person shall be sedated by a licensed physician, registered nurse, or other qualified personnel, by either an oral tablet or capsule or an intramuscular injection of a narcotic or barbiturate such as morphine, cocaine or demerol.”¹⁷⁰

New Mexico’s death penalty statute states that “[t]he manner of inflicting punishment of death shall be by administration of a continuous, intravenous injection of a lethal quantity of an ultra-short-acting barbiturate in combination with a chemical paralytic agent.”¹⁷¹ The warden of New Mexico’s penitentiary oversees the execution¹⁷² and must invite a physician to attend the event.¹⁷³ Although New Mexico adopted lethal injection in 1980, the state “did not formalize the process of execution until forced to by the scheduled execution of Terry Clark” in 2001.¹⁷⁴

New York law defines lethal injection as “intravenous injection of a substance or substances in a lethal quantity into the body of a person convicted until such person is dead.”¹⁷⁵ Since New York reinstated the death penalty in 1995, the state’s Court of Appeals has overturned several death sentences based on constitutional issues.¹⁷⁶

North Carolina employs lethal injection for its executions and is required by statute to use “an ultrashort-acting barbiturate in combination with a chemical paralytic agent.”¹⁷⁷ The superintendent of the state penitentiary is required to secure “qualified personnel to set up and prepare the injection, administer the preinjections,

¹⁶⁷ Andy Kosow, *Execution Surprises Officials, Pleases Families*, LAWRENCE EAGLE-TRIBUNE, Jan. 30, 2004, available at http://www.eagletribune.com/news/stories/20040130/NH_001.htm (last visited Jan. 18, 2006).

¹⁶⁸ *Id.*

¹⁶⁹ N.J. STAT. ANN. § 2C:49-2 (West 2005).

¹⁷⁰ *Id.*

¹⁷¹ N.M. STAT. ANN. § 31-14-11 (West 2005).

¹⁷² *Id.* § 31-14-12.

¹⁷³ *Id.* § 31-14-15.

¹⁷⁴ Kenneth Mentor, *The Death Penalty Returns to New Mexico*, Abstract prepared for the Annual Meetings of the Western Social Science Association, Albuquerque, NM (April 2002), available at http://kenmentor.com/papers/nm_deathpen.htm (last visited Jan. 23, 2006).

¹⁷⁵ NY CORRECT. LAW § 658 (Consol. 2005).

¹⁷⁶ N.Y. State Div. of Crim. Justice Svcs., http://criminaljustice.state.ny.us/pio/death_penalty.htm (last visited Jan. 17, 2006).

¹⁷⁷ N.C. GEN. STAT. § 15-187 (1998).

insert the IV catheter, and to perform other tasks required for this procedure.”¹⁷⁸ According to the North Carolina Department of Corrections, an inmate who is about to be executed is strapped to a gurney and covered with a sheet.¹⁷⁹ Intravenous lines are inserted into each arm, both initially delivering saline to the inmate’s body.¹⁸⁰ North Carolina employs a sodium pentothal, pancuronium bromide, and potassium chloride cocktail in its lethal injections.¹⁸¹

Death sentences in Ohio are carried out by “a lethal injection of a drug or combination of drugs of sufficient dosage to quickly and painlessly cause death. The application of the drug or combination of drugs [is] continued until the person is dead.”¹⁸² Ohio law includes a provision listing “any persons necessary to execute the death sentence by lethal injection”¹⁸³ and “[p]hysicians of the state correctional institution in which the sentence is executed”¹⁸⁴ among a select number of people who may be present at an execution.

Similarly to the statutes of several other states, Oklahoma’s death penalty statute commands that “[t]he punishment of death must be inflicted by continuous, intravenous administration of a lethal quantity of an ultrashort-acting barbiturate in combination with a chemical paralytic agent until death is pronounced by a licensed physician according to accepted standards of medical practice.”¹⁸⁵ Prison officials “must invite the presence of a physician” at the execution.¹⁸⁶ In its lethal injection protocol, Oklahoma uses sodium thiopental to cause unconsciousness, vecuronium bromide¹⁸⁷ to halt the prisoner’s breathing, and potassium chloride to stop the prisoner’s heart.¹⁸⁸ Three different executioners take part in the procedure, each injecting a different drug.¹⁸⁹

In the state of Oregon, “[t]he punishment of death [is] inflicted by the intravenous administration of a lethal quantity of an ultrashort-acting barbiturate in combination with a chemical paralytic agent and potassium chloride or other equally

¹⁷⁸ *Id.* § 15-188.

¹⁷⁹ N.C. Dep’t of Corr., *Execution Method*, <http://www.doc.state.nc.us/dop/deathpenalty/method.htm> (last visited Jan. 17, 2006).

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² OHIO REV. CODE ANN. § 2949.22(A) (West 1997).

¹⁸³ *Id.* § 2949.25(A)(1).

¹⁸⁴ *Id.* § 2949.25(A)(4).

¹⁸⁵ OKLA. STAT. ANN. tit. 22, § 1014 (West 2003).

¹⁸⁶ *Id.* § 1015(B) (West 2003).

¹⁸⁷ This drug, like pancuronium bromide, is a neuromuscular blocking agent. *Vecuronium Bromide*, HealthDigest, at <http://www.healthdigest.org/drugsprescribing-database/vecuronium-bromide-2205.htm> (last visited Jan. 17, 2006).

¹⁸⁸ Okla. Dep’t of Corrections, *Capital Punishment*, “Execution Process,” <http://www.doc.state.ok.us/DOCS/CapitalP.HTM> (last visited Jan. 17, 2006).

¹⁸⁹ *Id.*

effective substances sufficient to cause death.”¹⁹⁰ According to the state’s death penalty statute, those who administer the lethal drugs are not considered to be practicing medicine.¹⁹¹

Pennsylvania’s death penalty is “inflicted by injecting the convict with a continuous intravenous administration of a lethal quantity of an ultrashort-acting barbiturate in combination with chemical paralytic agents approved by the department until death is pronounced by the coroner.”¹⁹² The same law authorizes prison officials to obtain the drugs for the lethal injection cocktail from a pharmacist or drug manufacturer.¹⁹³ According to the Pennsylvania Department of Corrections, it “engages the services of individuals technically competent by virtue of training or experience to carry out the lethal injection procedure,”¹⁹⁴ but will not reveal the identities of these technicians “because of the confidentiality of the execution policy, for security reasons and out of respect of the privacy of those involved.”¹⁹⁵

Lethal injection was legalized in South Carolina in 1995,¹⁹⁶ and, as a result, death row inmates may now choose between execution by electrocution or execution by lethal injection, though the latter is the state’s default method.¹⁹⁷ According to the website of the South Carolina Department of Corrections, in order to secure the chemicals necessary for conducting lethal injections, the Department had to be licensed and regulated by the Federal Drug Enforcement Administration, the Department of Health and Environmental Control, and the State Board of Pharmacy.¹⁹⁸

South Dakota’s lethal injection cocktail is composed of an “ultra-short-acting barbiturate in combination with a chemical paralytic agent,” which are administered “until the convict is pronounced dead by a licensed physician according to accepted

¹⁹⁰ OR. REV. STAT. § 137.473(1) (2003). Interestingly, Oregon law also states that [n]o city or county or any facility with which the city or county has contracted to perform animal control functions and no humane society shall cause a dog or cat to be destroyed except by lethal injection of sodium pentobarbital or other substance approved by the Oregon State Veterinary Medical Examining Board.

Id. § 609.405(1) (West 2003). Therefore, it appears that while a combination of drugs is required to kill a person in Oregon, animals are euthanized (in what is supposed to be a “humane” process) with only one drug, a barbiturate. Consider, then, why a single barbiturate is considered humane enough to put animals to death, yet the legislature insists on requiring that two extra, apparently unnecessary drugs be used to execute humans.

¹⁹¹ *Id.* § 137.473(2) (West 2003).

¹⁹² 61 PA. STAT. ANN. § 3004(a) (West 1999).

¹⁹³ *Id.* § 3004(b).

¹⁹⁴ Commonwealth of Pa. Dep’t of Corrections, *Information on the Execution Process*, at 2, available at http://www.cor.state.pa.us/portal/lib/portal/Execution_Q_&_A.pdf (last visited Jan. 17, 2006).

¹⁹⁵ *Id.*

¹⁹⁶ S.C. Dep’t of Corrections, *Capital Punishment*, “Lethal Injection,” at <http://www.doc.sc.gov/PublicInformation/CapitalPunishment/AboutDeathRow.htm> (last visited Jan. 17, 2006).

¹⁹⁷ S.C. CODE ANN. § 24-3-530(A) (1995).

¹⁹⁸ See S.C. Dep’t of Corrections, *supra* note 196.

standards of medical practice.”¹⁹⁹ While, under the language of the statute, the person performing the lethal injection must be “trained,” the law further states that the person “need not be a physician, registered nurse, or licensed practical nurse licensed or registered under the laws of this or any other state.”²⁰⁰ Although the warden will invite the prison physician and two other doctors to attend the execution,²⁰¹ participation in a lethal injection is not considered to be the practice of medicine in South Dakota, and prison officials are permitted to obtain the components of the cocktail without a prescription.²⁰²

Tennessee’s death penalty statute does not refer to the drugs that should be used for lethal injections, nor does it mention anything about how the actual execution should take place or who will perform it.²⁰³ Instead, “[t]he [D]epartment of [C]orrection is authorized to promulgate necessary rules and regulations to facilitate the implementation of [the death penalty statute].”²⁰⁴ The Department of Correction has done just that, listing the chemicals used in its lethal injection cocktail as sodium pentothal (“puts inmate to sleep”), pancuronium bromide (“stops the breathing”), and potassium chloride (“stops the heart beating”).²⁰⁵

Texas, which carries out, by far, the most executions in the country,²⁰⁶ has a very brief and general death penalty statute.²⁰⁷ It provides only that offenders be executed “by intravenous injection of a substance or substances in a lethal quantity sufficient to cause death and until such convict is dead, such execution procedure to be determined and supervised by the Director of the institutional division of the Texas Department of Criminal Justice.”²⁰⁸ According to the Department of Criminal Justice, Texas employs sodium thiopental, pancuronium bromide, and potassium chloride in its lethal injection protocol, and the approximate length of an execution from injection to death is seven minutes.²⁰⁹

¹⁹⁹ S.D. CODIFIED LAWS § 23A-27A-32 (1984).

²⁰⁰ *Id.*

²⁰¹ S.D. Dep’t of Correction, *Frequently Asked Questions: Capital Punishment*, “Who is Allowed to Witness an Execution?,” at http://www.state.sd.us/corrections/FAQ_Capital_Punishment.htm (last visited Jan. 17, 2006).

²⁰² S.D. CODIFIED LAWS § 23A-27A-32 (2004).

²⁰³ TENN. CODE. ANN. § 40-23-114 (2003).

²⁰⁴ *Id.* § 40-23-114(c).

²⁰⁵ Tenn. Dep’t of Correction, *Execution Facts: The Execution Process*, “Lethal Injection,” at <http://www.state.tn.us/correction/newsreleases/executionprocess.html> (last visited Jan. 17, 2006).

²⁰⁶ Death Penalty Information Center, *Number of Executions by State and Region Since 1976*, at <http://www.deathpenaltyinfo.org/article.php?scid=8&did=186> (last updated Jan. 17, 2006). Between 1976 and January 17, 2006, Texas executed 355 convicts. *Id.* The state with the next most executions, Virginia, put ninety-four offenders to death during the same period. *Id.*

²⁰⁷ TEX. CODE CRIM. PROC. ANN. art. 43.14 (Vernon 1995).

²⁰⁸ *Id.*

²⁰⁹ Tex. Dep’t of Crim. Justice, *Death Row Facts*, at <http://www.tdcj.state.tx.us/stat/drow>

Utah still retains the firing squad as an option for those offenders sentenced to death before May 3, 2004, or if lethal injection is ever found to be unconstitutional.²¹⁰ Its required method for death row inmates sentenced after that date, however is lethal injection.²¹¹ Lethal injections in Utah are administered by “two or more persons trained in accordance with accepted medical practices to administer intravenous injections, who shall each administer a continuous intravenous injection, one of which shall be of a lethal quantity of sodium thiopental or other equally or more effective substance sufficient to cause death.”²¹² The lethal injection procedures employed by Utah are similar to those of Texas.²¹³

Virginia’s death penalty statute states that those condemned to die may be executed “by continuous intravenous injection of a substance or combination of substances sufficient to cause death.”²¹⁴ The court in *Reid v. Johnson*²¹⁵ detailed Virginia’s execution protocol:

The lethal substances will be injected into the inmate through an intravenous (“IV”) line placed percutaneously into veins on sites of the body deemed appropriate. The individuals who will be responsible for gaining venous access and administering the lethal substances are required to have been trained in all aspects of intravenous line placement.²¹⁶

With regards to lethal injection, Washington’s capital punishment statute specifies only that the condemned be injected with an intravenous substance that will serve sufficiently to kill him, until he is dead.²¹⁷ Before the execution, “a physical examination of the inmate will be conducted to determine any special problems (e.g., collapsed veins, obesity, deterioration of bone or muscular structure) that may affect the execution process.”²¹⁸ The goal of the procedure is to “ensure a swift and

facts.htm (last visited Jan. 17, 2006).

²¹⁰ See generally UTAH CODE ANN. § 77-18-5.5 (2004).

²¹¹ *Id.* § 77-18-5.5(1)–(2).

²¹² *Id.* § 77-19-10(2).

²¹³ Fla. Senate Comm. on Crim. Justice, *A Monitor: Methods of Execution & Protocols*, § IV(E), at <http://www.fcc.state.fl.us/fcc/reports/monitor/methmon.html> (last visited Jan. 17, 2006) (“Utah’s protocol on lethal injection is patterned after Texas’ protocol.”).

²¹⁴ VA. CODE ANN. § 53.1-233 (2005).

²¹⁵ 333 F. Supp. 2d 543 (E.D. Va. 2004).

²¹⁶ *Id.* at 546.

²¹⁷ WASH. REV. CODE ANN. § 10.95.180 (West 2002) (The prisoner may choose hanging instead).

²¹⁸ Wash. Dep’t of Corrections, Policy Directive 490.200(VIII)(B)(2) (1998), available at <http://www.doc.wa.gov/deathpenalty/deathpenaltypolicy.htm> (last visited Jan. 17, 2006).

humane death.”²¹⁹ Department of Corrections policy calls for the use of sodium thiopental, pancuronium bromide, and potassium chloride.²²⁰

Under Wyoming law, lethal injections are accomplished through the “administration of a continuous intravenous injection of a lethal quantity of an ultra-short-acting barbiturate in combination with a chemical paralytic agent, until death is pronounced by a licensed physician according to accepted standards of medical practice.”²²¹ Again, as in other states, participation in a lethal injection does not qualify as the practice of medicine in Wyoming.²²²

The Code of Federal Regulations provides that federal capital crimes will be punished

[b]y intravenous injection of a lethal substance or substances in a quantity sufficient to cause death, such substance or substances to be determined by the Director of the Federal Bureau of Prisons and to be administered by qualified personnel selected by the Warden and acting at the direction of the Marshal.²²³

If federal prisoners are convicted under certain statutes and the state in which the prisoner is to be executed does not allow the death penalty, “the court shall designate another State, the law of which does provide for the implementation of a sentence of death, and the sentence shall be implemented in the latter State in the manner prescribed by such law.”²²⁴

It should be noted that, despite state statutes that explicitly maintain that participation in an execution does not qualify as the practice of medicine, ethical concerns make it unlikely that doctors will substantially involve themselves with lethal injections.²²⁵ The American Medical Association has stated that physicians should not participate in executions,

includ[ing], but [] not limited to, the following actions: prescribing or administering tranquilizers and other psychotropic agents and medications that are part of the execution procedure; monitoring vital signs on site or remotely (including monitoring electrocardiograms); attending or observing an execution as a physician; and rendering of technical advice regarding execution.

²¹⁹ *Id.* at 490.200(VIII)(B)(3).

²²⁰ *Id.* at 490.200(IX)(A)(4)(d).

²²¹ WYO. STAT. ANN. § 7-13-904(a) (2005).

²²² *Id.*

²²³ 28 C.F.R. § 26.3(4) (2005).

²²⁴ 18 U.S.C.A. § 3596(a) (West 1994).

²²⁵ Am. Medical Ass’n, *Code of Ethics*, “Capital Punishment,” at E-2.06, available at <http://www.ama-assn.org/ama/pub/category/8419.html> (last visited Nov. 28, 2004).

In the case where the method of execution is lethal injection, the following actions by the physician would also constitute physician participation in execution: selecting injection sites; starting intravenous lines as a port for a lethal injection device; prescribing, preparing, administering, or supervising injection drugs or their doses or types; inspecting, testing, or maintaining lethal injection devices; and consulting with or supervising lethal injection personnel.²²⁶

Thus, although the state might not consider a physician's participation in an execution to be the practice of medicine, it appears that the American Medical Association (and, by implication, a majority of members of the medical profession) considers it a serious ethical lapse.²²⁷

IV. RESEARCH ON THE DRUG PAVULON (PANCURONIUM BROMIDE)

Pavulon, a drug also known as pancuronium bromide, is a neuromuscular blocker used during surgical procedures to paralyze the body.²²⁸ Pancuronium bromide can stop a person's breathing by paralyzing his lungs and diaphragm.²²⁹ It is normally administered by an anesthetist.²³⁰ Pavulon is also a common ingredient in the "cocktail" used by states to execute death row inmates. In a 2002 law review article, author Deborah W. Denno identified twenty-seven lethal injection states that use the classic cocktail of sodium thiopental, pancuronium bromide, and potassium chloride.²³¹

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ Royal Australian Coll. of General Practitioners Online, *Pancuronium Bromide Injection B. P.*, at 1, at <http://www.racgp.org.au/downloads/medicines/cmi/apcpancu.pdf> (last visited Jan. 17, 2006).

²²⁹ Denno, *supra* note 106, at 98 (citing THE AM. COLL. OF PHYSICIANS ET AL., BREACH OF TRUST: PHYSICIAN PARTICIPATION IN EXECUTIONS IN THE UNITED STATES 20 (1994); PHYSICIAN'S DESK REFERENCE 1193 (55th ed. 2001)).

²³⁰ Royal Australian Coll. of General Practitioners Online, *supra* note 228, at 2.

²³¹ Denno, *supra* note 106, at 146 tbl. 11 (identifying the following states: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Louisiana, Maryland, Mississippi, Missouri, Montana, New Mexico, New York, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Utah, Washington, and Wyoming). While Denno names Oklahoma as one of the states utilizing pancuronium bromide in its executions, the Oklahoma Department of Corrections' website declares that the state actually uses a drug known as vecuronium bromide. Okla. Dep't of Corrections, *Capital Punishment*, "Execution Process," at <http://www.doc.state.ok.us/DOCS/CapitalP.HTM> (last visited Jan. 17, 2006). Because vecuronium bromide is a neuromuscular blocker like pancuronium bromide and is used for similar purposes, HealthDigest.org, *supra* note 187, this Note will continue to include Oklahoma among its count of states that use pancuronium bromide in their lethal injection procedures.

An additional state, North Carolina, uses sodium thiopental and pancuronium bromide,²³² making a total of twenty-eight states known to employ pavulon in lethal injections.²³³ Despite the lack of information from some states, the evidence indicates that the sodium thiopental/pancuronium bromide/potassium chloride combination is the most frequently-used lethal injection cocktail in the country. This makes the questions raised by opponents of the drug pavulon that much more disconcerting.

In its 2000 Report on Euthanasia, a panel of the American Veterinary Medical Association condemned the use of neuromuscular blockers by themselves as a method for euthanizing animals.²³⁴ The report likewise found that, when used alone or in combination with sodium pentobarbital, neuromuscular blocking agents — a category that includes pavulon — “cause respiratory arrest before loss of consciousness, so the animal may perceive pain and distress after it is immobilized.”²³⁵ Tennessee’s Non-Livestock Animal Humane Death Act²³⁶ states that “Succinylcholine chloride, curare, curariform mixtures, strychnine, nicotine, chloral hydrate, magnesium or potassium *or any substance which acts as a neuromuscular blocking agent*, or any chamber which causes a change in body oxygen may not be used on any nonlivestock animal for the purpose of euthanasia.”²³⁷ Therefore, although non-livestock animals in Tennessee cannot be legally euthanized with a drug such as pavulon, the state (along with many others) continues to use it in the executions of human beings.

V. LEGAL CHALLENGES TO THE USE OF PAVULON IN LETHAL INJECTIONS

Several death row inmates have recently challenged the constitutionality of their respective states’ use of pavulon in the lethal injection procedure.²³⁸ Although this particular avenue of challenging lethal injections has yet to be successful, the cases that follow are illustrative of a growing trend.

In *Abdur’Rahman v. Bredesen*,²³⁹ the Tennessee Court of Appeals found that the petitioner did not qualify as a non-livestock animal under the state’s Non-Livestock Animal Humane Death Act,²⁴⁰ which prohibits the use of drugs such as pavulon to

²³² Denno, *supra* note 106, at 146, tbl. 11.

²³³ In Nevada, Pennsylvania, South Carolina, and Virginia, the names of the drugs used in lethal injections are kept confidential, and information is unavailable from three other states (Kansas, Kentucky, and New Hampshire). *Id.*

²³⁴ 2000 Report of the AVMA Panel on Euthanasia, 218 J. AM. VETERINARY MED. ASS’N 669, 681 (Mar. 1, 2001).

²³⁵ *Id.* at 696 app. 4.

²³⁶ TENN. CODE ANN. § 44-17-303 (2000).

²³⁷ *Id.* § 44-17-303(c) (emphasis added).

²³⁸ See *supra* note 3 and accompanying text.

²³⁹ No. M2003-01767-COA-R3-CV, 2004 Tenn. App. LEXIS 643 (Tenn. Ct. App. Oct. 6, 2004).

²⁴⁰ *Id.* at *23.

euthanize certain animals.²⁴¹ The court wrote that following the petitioner's line of reasoning could lead to "absurd results."²⁴² If Abdur'Rahman were to qualify for protection under the Non-Livestock Animal Humane Death Act, his execution could be performed only by "a licensed veterinarian, a veterinarian technician, or a shelter employee who has successfully completed a euthanasia-technician certification course."²⁴³ The court thus rejected Abdur'Rahman's claim, finding that the plain language of the statute and the intent of the General Assembly, as shown by the legislative record, indicated that the Non-Livestock Animal Humane Death Act was not meant to apply to humans.²⁴⁴

The petitioner also challenged the state's lethal injection procedure because the ethics of the medical profession would prevent doctors and nurses from participating in executions, leaving medical procedures in the hands of unlicensed personnel.²⁴⁵ The court rejected this argument as well, finding that the Tennessee Department of Corrections' statutory authority was "broad enough to enable the department to carry out an execution by lethal injection without the use of trained medical professionals and without complying strictly with the regulatory constraints normally applicable to the use of drugs in a clinical setting."²⁴⁶

Ultimately, the court held that the fact that other states had experienced problems during their lethal injection procedures did not mean that Tennessee's lethal injection cocktail posed an "unacceptable risk" that condemned inmates would suffer unnecessary physical or psychological pain.²⁴⁷ The court ended its opinion by suggesting that Mr. Abdur'Rahman take his concerns over the state's lethal injection procedures to the Department of Corrections and the state's General Assembly.²⁴⁸

In *Reid v. Johnson*,²⁴⁹ a condemned inmate challenged the Commonwealth of Virginia's planned usage of lethal injection under a federal civil rights statute.²⁵⁰ According to the court's opinion, prisoner James Edward Reid would be executed with a series of drugs: sodium thiopental, pancuronium bromide, and potassium

²⁴¹ TENN. CODE ANN. § 44-17-303(c) (2001).

²⁴² *Abdur'Rahman*, 2004 Tenn. App. LEXIS 643, at *29.

²⁴³ *Id.* at *29-30.

²⁴⁴ *Id.* at *30-31.

²⁴⁵ *Id.* at *32.

²⁴⁶ *Id.*

²⁴⁷ *Id.* at *67 (citing *Poland v. Stewart*, 117 F.3d 1094, 1105 (9th Cir. 1997)).

²⁴⁸ *Id.* at *74.

²⁴⁹ 333 F. Supp. 2d 543 (E.D. Va. 2004).

²⁵⁰ The statute, 42 U.S.C. § 1983 (1996), provides, in part, that [e]very person who, under color of any statute, ordinance, regulation, custom, or usage, of any State or Territory or the District of Columbia, subjects, or causes to be subjected, any citizen of the United States or other person within the jurisdiction thereof to the deprivation of any rights, privileges, or immunities secured by the Constitution and laws, shall be liable to the party injured in an action at law, suit in equity, or other proper proceeding for redress

chloride, all injected intravenously.²⁵¹ Reid's request for injunctive relief was based partially on his claim that Virginia planned to execute him with a cocktail of drugs that would force him to endure severe pain right before he died.²⁵² The court stated, however, that under Virginia's execution protocol, there was less than 1/100th of a percent chance that Reid would regain consciousness within twenty minutes of the execution's start.²⁵³

The court wrote that for Reid to succeed in his section 1983 claim, "[t]here must be a likelihood that immediate irreparable harm will occur."²⁵⁴ Reid maintained that there was a "grave risk" that, once injected with the anesthetic, the drug's effects would wear off, forcing him to feel tremendous pain as the pancuronium bromide and potassium chloride were injected.²⁵⁵ Reid was particularly worried that the cocktail would intensify his suffering because the pancuronium bromide would paralyze him and make it impossible for prison officials to realize that the anesthesia was not working.²⁵⁶ Despite this, the court found that Reid had failed to show that Virginia's execution protocol would cause him to suffer irreparable harm.²⁵⁷ In fact, after examining the record, the court determined that there was less than 6/1000th of a percent chance that Reid would feel anything during either the administration of the final two chemicals or his eventual death.²⁵⁸

The above cases, while not the only challenges to the constitutionality of the lethal injection cocktail that have been filed recently,²⁵⁹ are emblematic of a growing trend based on prisoners' concerns that they will suffer unnecessary pain while dying and will be unable to communicate their distress to prison officials because of the paralytic effects of the pancuronium bromide with which they have been injected. While no prisoner has been successful in such a challenge as of yet, the increased attention these lawsuits bring from the courts, state legislatures, and the public should serve to push a discussion about the propriety and necessity of using pavulon in lethal injections toward the forefront of the national stage.

VI. POSSIBLE ALTERNATIVES TO PAVULON

The most drastic alternative to using pavulon in lethal injections is to stop using that method of execution entirely. This is unlikely to happen, as several courts have

²⁵¹ *Reid*, 333 F. Supp. 2d at 546.

²⁵² *Id.* at 550.

²⁵³ *Id.* at 547.

²⁵⁴ *Id.* at 550 (citing *Manning v. Hunt*, 119 F.3d 254, 263 (4th Cir. 1997)).

²⁵⁵ *Id.* at 551.

²⁵⁶ *Id.*

²⁵⁷ *Id.* (citing *Manning*, 119 F.3d at 265). Apparently, the judges of the Eastern District of Virginia did not consider Reid's ultimate death to be an "irreparable harm."

²⁵⁸ *Id.*

²⁵⁹ See, e.g., *Beardslee v. Woodford*, 395 F.3d 1064 (9th Cir. 2005); *Harris v. Johnson*, 376 F.3d 414 (5th Cir. 2004); *Cooper v. Rimmer*, 379 F.3d 1029 (9th Cir. 2004); *In re Williams*, 359 F.3d 811 (6th Cir. 2004).

already upheld the constitutionality of lethal injections as they are currently practiced.²⁶⁰ The most likely alternative is to adopt the regimen employed by New Jersey, the only lethal injection state known not to use pavulon.²⁶¹ New Jersey employs two trays in its execution procedure, one with saline and potassium chloride, and the other with saline and sodium thiopental.²⁶² An article in the *New York Times* quoted Dr. Sherwin B. Nuland, a professor at Yale Medical School and author of the book *How We Die*, as saying that he was “baffled to hear that pancuronium bromide was used in executions. ‘It strikes me that it makes no sense to use a muscle relaxant in executing people,’ he said. ‘Complete muscle paralysis does not mean loss of pain sensation.’”²⁶³ Dr. Nuland, while a “cautious supporter of the death penalty,” believes that it is possible to execute prisoners humanely, with one solution being the elimination of pancuronium bromide from the standard lethal injection cocktail.²⁶⁴ Other experts believe that it would be easier and more humane to execute prisoners with the method typically used to euthanize animals, a single dose of the barbiturate sodium pentobarbital.²⁶⁵

Another alternative is to explore some of the methods typically used by people who take their own lives.²⁶⁶ According to the *Detroit Free Press*, Dr. Jack Kevorkian has employed two different methods while assisting suicides.²⁶⁷ The first, which somewhat resembles a lethal injection, involves a machine that administers saline, a sedative, and then a mixture of potassium chloride and a muscle relaxant.²⁶⁸ While this appears to be exactly the same combination of chemicals used in the lethal injection cocktails that are currently being challenged across the country, the main apparent differences are that the machine injects the potassium chloride and the muscle relaxant together and that, under Dr. Kevorkian’s scheme, it takes the patient only two minutes to die.²⁶⁹

Kevorkian’s second method involves a machine which, similar to locking oneself in a garage with the car running, kills its users by carbon monoxide poisoning.²⁷⁰

²⁶⁰ See *supra* note 3.

²⁶¹ Denno, *supra* note 106, at 146 tbl. 11.

²⁶² *Id.*

²⁶³ Adam Liptak, *Critics Say Execution Drug May Hide Suffering*, N.Y. TIMES, Oct. 7, 2003, at A1.

²⁶⁴ *Id.*

²⁶⁵ *Id.*

²⁶⁶ This list, of course, is not exhaustive and takes neither suicide nor executions lightly. Instead, it is intended to evoke a discussion on whether there are any methods other than lethal injection that states or the federal government could use which would carry fewer risks of causing a painful death for the condemned.

²⁶⁷ Kirk Cheyfitz, *Death’s 1st Lessons: June 1990–December 1992*, DETROIT FREE PRESS, Mar. 4, 1997, at 5A.

²⁶⁸ *Id.*

²⁶⁹ *Id.* Compare this with the average length of lethal injections in Texas (seven minutes). Tex. Dep’t of Crim. Justice, *supra* note 209 and accompanying text.

²⁷⁰ Cheyfitz, *supra* note 267.

While this process can take ten minutes or longer,²⁷¹ the colorless, odorless gas is notorious for killing people in their sleep,²⁷² indicating that its effects are most likely not painful.

One final method that is worth consideration is the technique used by the Chinese government to execute its citizens: a single gunshot to the back of the head.²⁷³ If done correctly, the prisoner's death is instantaneous. The execution is, however, much less serene and sanitary than the public has become used to as a result of the widespread use of lethal injections. The question then becomes whether we, as a country, should value an instant, though messy, death with little opportunity for the inmate to feel pain over one in which the prisoner looks peaceful on the outside but could potentially be dying in agony. There is, of course, no easy answer.

VII. EVALUATION OF PRISONERS' CHALLENGES TO THE USE OF PAVULON

The crux of the challenges some death row inmates are making to the use of lethal injection boils down to the following statement:

Just about every aspect of the death penalty provokes acrimonious debate, but this method of killing, [lethal injection,] by common consensus, is as humane as medicine can make it. People who have witnessed injection executions say the deaths appeared hauntingly serene, more evocative of the operating room than of the gallows. But a growing number of legal and medical experts are warning that the apparent tranquillity of a lethal injection may be deceptive. They say the standard method of executing people in most states could lead to paralysis that masks intense distress, leaving a wide-awake inmate unable to speak or cry out as he slowly suffocates.²⁷⁴

A brochure on pancuronium bromide made available online by the Royal Australian College of General Practitioners assures readers that, because the anesthetist administering the pancuronium bromide "will be experienced in its use," the odds that they will be given an excessive dose is highly unlikely.²⁷⁵ Likewise,

²⁷¹ *Id.*

²⁷² Paul E. Ramey, *UF Medical Experts Warn Against Carbon Monoxide Poisoning*, U.FLA. NEWS, Feb. 11, 1998, available at <http://www.napa.ufl.edu/98news/carbon.htm> (last visited Jan. 17, 2006).

²⁷³ Christopher Q. Cutler, *Nothing Less Than the Dignity of Man: Evolving Standards, Botched Executions and Utah's Controversial Use of the Firing Squad*, 50 CLEV. ST. L. REV. 335, 406 (2002-03).

²⁷⁴ Liptak, *supra* note 263.

²⁷⁵ Royal Australian Coll. of General Practitioners Online, *supra* note 228.

in its 2000 report on euthanasia for animals, a panel of the American Veterinary Medical Association wrote that, when using a combination of anesthesia and intravenously-injected potassium chloride (the method commonly used in human executions by lethal injection), it is essential that the people administering the drugs have been properly trained and are able to accurately monitor the subject's level of unconsciousness in order to avoid problems when the potassium chloride is injected.²⁷⁶ Many states have no statutory requirements for the people injecting condemned inmates with anesthesia, pavulon, and potassium chloride. In fact, a Tennessee court recently found that the Tennessee Department of Corrections' lethal injection procedures do not have to be regulated by state licensing statutes which require that licensed medical personnel perform some procedures.²⁷⁷ According to the court, state law does not require that the Department of Corrections obtain the assistance of licensed medical professionals when conducting lethal injections.²⁷⁸ It is ironic (and unsettling) that Tennessee has a law explicitly detailing the circumstances under which non-livestock animals may be euthanized, while few states require the same precision when executing human beings.

The use of pavulon, a paralytic agent, in the lethal injection cocktail poses additional problems because it makes the prisoner appear serene and calm, masking any potential problems with the execution.²⁷⁹ In an interview with the *New York Times*, Dr. Mark J.S. Heath, an anesthesiologist who teaches at Columbia Medical School, stated that there was a risk that the anesthesia could wear off, in which case the condemned would be able to feel his body shutting down, yet would be unable to communicate, having been paralyzed by pavulon.²⁸⁰ Dr. Heath described this situation as essentially a "'chemical tomb.'"²⁸¹ Dr. Heath likewise expressed concern that, because medical ethics prohibit medical professionals from participating in executions, there is a greater likelihood that the drugs will not be injected properly.²⁸² Without the participation of properly trained doctors to administer the lethal drugs, the risk of botched, painful executions is high.²⁸³

In an electrifying recent development, two anesthesiologists, citing ethical concerns, refused to participate in the execution of Michael Angelo Morales, a California inmate who was scheduled to be executed on February 21, 2006 for the rape and

²⁷⁶ 2000 Report of the A.V.M.A., *supra* note 234, at 680–81.

²⁷⁷ *Abdur' Rahman v. Bredesen*, No. M2003-01767-COA-R3-CV, 2004 Tenn. App. LEXIS 643, at *36–37 (Tenn. Ct. App. Oct. 6, 2004).

²⁷⁸ *Id.*

²⁷⁹ Liptak, *supra* note 263.

²⁸⁰ *Id.*

²⁸¹ *Id.*

²⁸² *Id.*

²⁸³ COYNE & ENTZEROTH, *supra* note 45, at 87 (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991).

murder of a seventeen-year-old girl.²⁸⁴ The anesthesiologists argued that their participation in the execution would “violate[] medical strictures against harming patients,”²⁸⁵ and they “feared that they might be called on to intervene if the procedure went awry.”²⁸⁶ California employs the typical three-drug “cocktail” (sodium pentothal, pavulon, and potassium chloride) in its lethal injection procedure.²⁸⁷ “Morales’ attorneys had argued that the three-part lethal injection cocktail used in California and 35 other states violated the Eighth Amendment prohibition on cruel and unusual punishment. They said a prisoner would feel excruciating pain from the last two chemicals if he were not fully sedated.”²⁸⁸

As a result of the doctors’ walk-out, Judge Jeremy Fogel of the U.S. District Court for the Northern District of California ordered the state to execute Morales using only “a single lethal dose of . . . five grams of sodium thiopental.”²⁸⁹ He did so after hearing evidence “from witnesses and autopsies that the first drug, sodium thiopental, might not have been given properly or in a sufficient dose in some cases, leaving the inmate awake when the other drugs were administered and causing great pain.”²⁹⁰ The state subsequently responded that it was unable to comply with the judge’s order to use the one-drug execution protocol, thus indefinitely delaying Morales’ execution.²⁹¹

Judge Fogel has scheduled a hearing for May 2006 in order to gather evidence “on the science and the law of the single-drug execution method of lethal injection,”²⁹² which California has never before employed.²⁹³ Journalist John M. Broder suggests that

[t]he repercussions of [the Morales incident] will most probably be felt around the country as federal courts . . . undertake a review of the practice of lethal injection, the preferred method of execution in 35 of the 36 states that allow capital punishment. The legal maneuvering will delay the execution of the condemned man, Michael A.

²⁸⁴ *California Execution Delayed as Doctors Walk Out*, CNN.com, Feb. 21, 2006.

²⁸⁵ John M. Broder, *Questions Over Method Lead to Delay of Execution*, N.Y. TIMES, Feb. 22, 2006, at A11 [hereinafter Broder, *Questions*].

²⁸⁶ *Id.*

²⁸⁷ See *supra* notes 116–20 and accompanying text for a description of California’s lethal injection protocol.

²⁸⁸ *California Execution Delayed as Doctors Walk Out*, *supra* note 284.

²⁸⁹ Broder, *Questions*, *supra* note 285.

²⁹⁰ John M. Broder, *Lethal Injection Draws a New National Spotlight*, N.Y. TIMES, Feb. 23, 2006, at A24 [hereinafter Broder, *Lethal Injection*]. In fact, the judge noted that evidence indicated that six of the last thirteen inmates executed by California “may have been conscious when the paralytic agent and the heart-stopping chemical were given.” *Id.*

²⁹¹ Broder, *Questions*, *supra* note 285.

²⁹² *Id.*

²⁹³ *Id.*

Morales, for months if not longer and will be closely watched particularly in those states that plan to execute prisoners this year.²⁹⁴

According to Richard Dieter, the Death Penalty Information Center's executive director, "the Morales case, or one very much like it from another state, might well end up before the United States Supreme Court."²⁹⁵

CONCLUSION

Throughout history, new methods of execution have become popular because they are seen as more humane than any of the other available alternatives; those methods are often replaced, however, after the public realizes that they are not as humane as they seem.²⁹⁶ Lethal injection appears to be falling into the same pattern, which leaves the question of what, if any, method could be used to replace it. At the current time, the only alternative to lethal injection that is *guaranteed* to be "humane" appears to be prohibiting executions entirely, which is unlikely to happen in the present political climate.

In light of the numerous potential problems associated with the use of paralytic agents such as pavulon in the lethal injection process, state and federal officials would be wise to reconsider whether paralytic agents are truly necessary to execute prisoners or whether they are used merely to make executions easier for witnesses and prison officials to watch. It is, of course, impossible to know exactly what a condemned inmate feels while he is being executed by lethal injection, but Professor Deborah W. Denno says that pavulon "'seems to have no other purpose than to keep a person still.'"²⁹⁷ According to *New York Times* reporter Adam Liptak, surgery patient Carol Weihrer testified that she was anesthetized and subsequently immobilized with pavulon before her operation.²⁹⁸ The anesthesia stopped working, however, and Ms. Weihrer was forced to lie on the operating table for several hours,

²⁹⁴ Broder, *Lethal Injection*, *supra* note 290.

²⁹⁵ *Id.*

²⁹⁶ See, e.g., BANNER, *supra* note 18, at 48 ("In the middle of the nineteenth century, when technological change would make it possible to minimize pain, more and more spectators would begin to find hanging too gruesome a method of execution."); COYNE & ENTZEROTH, *supra* note 45, at 83 (quoting Jacob Weisberg, *This is Your Death*, NEW REPUBLIC, July 1, 1991) ("It was to mitigate the barbarism of these primitive methods [hanging and the firing squad,] that New York introduced the electric chair in 1890 as a humane alternative."); *id.* at 85 ("The gas chamber . . . was first introduced as a humane alternative to the electric chair."); *id.* at 86 ("Thanks to the[] grotesqueries [of the gas chamber], states are increasingly turning to lethal injection.").

²⁹⁷ Adam Liptak, *Federal Judge Rules Chemicals Used in Executions Are Humane*, N.Y. TIMES, Feb. 7, 2004, at A16.

²⁹⁸ Liptak, *supra* note 263.

unable to communicate that she was awake.²⁹⁹ According to Ms. Weihrer, her ordeal was “terrifying and torturous” and “worse than death.”³⁰⁰ Prison officials have no way of knowing whether or not a prisoner is truly unconscious after pavulon has been introduced into the lethal injection cocktail. If the true goal of lethal injection is to provide a “humane” death for death row inmates, it is foolhardy to take the risk that the prisoner will experience the sensations caused by a lethal dose of potassium chloride, “an extraordinarily painful chemical which activates the nerve fibers lining the person’s veins and which interferes with the rhythmic contractions of the heart, causing cardiac arrest.”³⁰¹ Pavulon’s ability to make executions more palatable for observers to watch is simply not worth the risk. After the dramatic incident in California, this issue seems likely to flood the court system, perhaps eventually reaching the United States Supreme Court. While it is impossible at this point to predict how courts will treat the constitutionality of lethal injection (and the use of pavulon in particular), CNN’s Jeffrey Toobin and Soledad O’Brien put the issue into perspective in a recent discussion on the show *American Morning*:³⁰²

O’Brien: What I don’t understand is this drug, Pavulon, which as you point out, they don’t even allow it [to be] used in animals . . . because it’s supposed to be so painful for animals. . . . [A]ren’t there other drugs where you could so heavily sedate someone that they would essentially just sort of slip into death? I mean, aren’t there just other medications?³⁰³

Toobin: You would think. You would think. But it is harder — it is harder than you think. . . . [Y]ou would be surprised how difficult it is, . . . *it’s harder to execute someone painlessly than would seem likely.*³⁰⁴

²⁹⁹ *Id.*

³⁰⁰ *Id.*

³⁰¹ *Beardslee v. Woodford*, 395 F.3d 1064, 1071 (9th Cir. 2005).

³⁰² *American Morning: Last-Minute Energy Funding: P.R. Ploy?; California Execution Delayed Due to Ethical Dilemma* (CNN television broadcast Feb. 21, 2006).

³⁰³ *Id.*

³⁰⁴ *Id.* (emphasis added).