

No. 07-5439

---

---

IN THE  
**Supreme Court of the United States**

---

RALPH BAZE, *et al.*

*Petitioners,*

*v.*

JOHN D. REES, *et al.*

*Respondents.*

---

ON WRIT OF CERTIORARI TO THE  
SUPREME COURT OF KENTUCKY

---

---

**BRIEF OF DRS. KEVIN CONCANNON,  
DENNIS GEISER, CAROLYN KERR,  
GLENN PETTIFER, AND  
SHEILAH ROBERTSON AS *AMICI CURIAE*  
IN SUPPORT OF PETITIONERS**

---

---

SIMONA G. STRAUSS  
*Counsel of Record*  
LUCIA MACDONALD  
GEORGE R. MORRIS  
ANGELA M. MOORE  
SIMPSON THACHER & BARTLETT LLP  
2550 Hanover Street  
Palo Alto, California 94304  
(650) 251-5000

*Counsel for Amici Curiae*

---

---

212298



COUNSEL PRESS  
(800) 274-3321 • (800) 359-6859

**TABLE OF CONTENTS**

|  | <i>Page</i> |
|--|-------------|
| TABLE OF CITED AUTHORITIES .....   | iii         |
| INTEREST OF THE <i>AMICI CURIAE</i> .....  | 1           |
| SUMMARY OF ARGUMENT .....  | 3           |
| ARGUMENT .....   | 9           |
| I. THE PROTOCOL FOR THE USE OF<br>POTASSIUM CHLORIDE IN<br>KENTUCKY EXECUTIONS FAILS TO<br>COMPLY WITH MINIMUM<br>VETERINARY STANDARDS FOR<br>HUMANE EUTHANASIA OF<br>ANIMALS. ....    | 9           |
| A. Humane Euthanasia Prohibits the<br>Use of Potassium Chloride in a<br>Conscious Patient .....  | 9           |
| B. A Veterinarian Following Kentucky’s<br>Lethal Injection Protocol Would Not<br>Be Able to Ensure That a Patient Was<br>at a Surgical Plane of Anesthesia ...                         | 11          |
| C. The Short-Acting Nature of Sodium<br>Thiopental Makes It More Difficult<br>to Maintain a Surgical Plane of<br>Anesthesia Than the Anesthetic Used<br>in Veterinary Euthanasia ..... | 14          |

*Contents*

|  | <i>Page</i> |
|--|-------------|
| II. THE USE OF PANCURONIUM BROMIDE MASKS CONSCIOUSNESS AND IS CONTRARY TO HUMANE VETERINARY EUTHANASIA. .... | 16          |
| A. Pancuronium Bromide Causes a Conscious Patient to Experience Suffocation .....                            | 16          |
| B. Pancuronium Bromide Inhibits the Ability to Assess a Patient's Consciousness .....                        | 17          |
| III. THE PREFERRED METHOD OF HUMANE EUTHANASIA IN ANIMALS IS THE USE OF SODIUM PENTOBARBITAL ALONE. ....     | 19          |
| CONCLUSION .....   | 20          |

**TABLE OF CITED AUTHORITIES**

*Page*

**Federal Cases**

*Harbison v. Little*,  
No. Civ. 3:06-1206, 2007 WL 2821230  
(M.D. Tenn. Sept. 19, 2007) .....9, 16, 19

*Morales v. Tilton*,  
465 F. Supp. 2d 972 (N.D. Cal. 2006) ..... 13

**State Cases**

*Baze v. Rees*,  
No. 04-CI-01094, 2005 WL 5797977  
(Ky. Cir. Ct. July 8, 2005) .....5, 11, 15

*Lightbourne v. McCollum*,  
No. SC06-2391, 2007 WL 3196533  
(Fla. Nov. 1, 2007) ..... 17

**State Statutes**

510 Ill. Comp. Stat. 70/2.09 ..... 18

Ala. Code § 34-29-131 ..... 18

Ala. Admin. Code r. 930-x-1-.36 ..... 18

Alaska Stat. 08.02.050 ..... 18

Ariz. Rev. Stat. Ann. § 11-1021 ..... 18

*Cited Authorities*

|   | <i>Page</i> |
|---|-------------|
| Colo. Rev. Stat. § 18-9-201 .....             | 18          |
| Del. Code Ann. tit. 3, § 8001 .....           | 18          |
| Fla. Stat. § 828.058 .....                    | 18          |
| Ga. Code Ann. § 4-11-5.1 .....                | 18          |
| Kan. Stat. Ann. 47-1718(a) .....              | 18          |
| Ky. Admin. Regs. 201 Ch.16:090 § 5(1) .....   | 4, 14, 19   |
| Ky. Rev. Stat. § 258.095(12) .....            | 3           |
| La. Rev. Stat. Ann. § 3:2465(C)(1) .....      | 18          |
| Mass. Gen. Laws Ann. ch. 140, § 151A .....    | 18          |
| Md. Code Ann., Crim. Law § 10-611(a)(3) ..... | 18          |
| Me. Rev. Stat. Ann. tit. 17, § 1044 .....     | 18          |
| Mo. Ann. Stat. § 578.005(7) .....             | 18          |
| N.J. Stat. Ann. § 4:22-19.3 .....             | 18          |
| N.Y. Agric. & Mkts. Law 374(2-b) .....        | 18          |
| Okla. Stat. tit. 4, § 501(c) .....            | 18          |

*Cited Authorities*

|   | <i>Page</i> |
|---|-------------|
| S.C. Code Ann. § 47-3-420(A) .....              | 18          |
| Tenn. Code Ann. § 44-17-303(c) .....            | 18          |
| Tex. Health & Safety Code Ann. § 821.052(a) ... | 18          |
| W. Va. Code Ann. § 30-10A-8 .....               | 18          |
| Wyo. Stat. Ann. § 33-30-216 .....               | 18          |

**Other Authorities**

|  |                |
|--|----------------|
| American Veterinary Medical Association<br>Guidelines on Euthanasia (June 2007) .....                        | 10, 11, 14, 19 |
| Brief of the Veterinary Amici in <i>Hill v.<br/>McDonough</i> , 126 S. Ct. 2096 (2006) .....                 | 17, 18         |
| Florida Corrections Commission, Supplemental<br>Report - Methods of Execution Used by States<br>(1997) ..... | 13             |

**INTEREST OF THE *AMICI CURIAE***

Drs. Kevin Concannon, Dennis Geiser, Carolyn Kerr, Glenn Pettifer and Sheilah Robertson (the “Veterinary Amici”) respectfully submit this brief of *amici curiae* in support of Petitioners Ralph Baze and Thomas C. Bowling. Consent of Petitioners’ counsel and Respondents’ counsel has been obtained for the filing of this brief.<sup>1</sup>

The Veterinary Amici are experienced veterinarians, with extensive knowledge regarding veterinary anesthesia. They regularly face issues regarding the humane euthanasia of animals. They also have specific expertise regarding the chemicals used by the State of Kentucky in lethal injections, including the limitations and effects of these chemicals in euthanizing animals.

Dr. Kevin Concannon is a veterinarian and a diplomate of the American College of Veterinary Anesthesiologists. During nearly 20 years as a practicing veterinarian, he has taught veterinary anesthesia and served as a supervisor of clinical anesthesia at both the University of California - Davis and North Carolina State University College of Veterinary Medicine. He has worked for the past ten years as an emergency/critical care clinician, anesthesia consultant and hospital director at the Veterinary Specialty Hospital of the Carolinas.

---

1. Letters of consent are being filed herewith. Counsel for a party did not author this brief in whole or in part. No person or entity other than the *amici curiae* and their counsel made a monetary contribution to the preparation or submission of the brief.

Dr. Dennis Geiser is a veterinarian and a diplomate of the American Board of Veterinary Practitioners. He is a professor of veterinary science at the University of Tennessee and the Assistant Dean of Organizational Development and Outreach at the College of Veterinary Medicine at the University of Tennessee. Dr. Geiser teaches equine respiratory disease and large animal anesthesia, conducts clinical work in anesthesiology and pain management, and conducts research in pain management, balance of anesthesia in animals and local and regional anesthesia.

Dr. Carolyn Kerr is a veterinarian and a diplomate of the American College of Veterinary Anesthesiologists. She has a D.V.Sc. in Veterinary Anesthesia and a Ph.D. in Physiology. Dr. Kerr is currently an associate professor at the Ontario Veterinary College at the University of Guelph. She has practiced veterinary medicine for 18 years and has lectured in veterinary anesthesia, pain management and euthanasia for the last 7 years to veterinary students and researchers at the University of Guelph.

Dr. Glenn Pettifer is a veterinarian and has a D.V.Sc. in veterinary anesthesiology. He is a diplomate and an executive board member of the American College of Veterinary Anesthesiologists. He currently practices veterinary anesthesiology at the Veterinary Emergency Clinic in Toronto, Canada. Dr. Pettifer formerly taught veterinary anesthesiology and pain management at Louisiana State University and was later the Chief of Anesthesia Service there.



Dr. Sheilah Robertson is a specialist in veterinary anesthesiology and pain management. She is a diplomate of the European and American Colleges of Veterinary Anesthesia and is currently a professor in the section of anesthesia and pain management at the University of Florida's College of Veterinary Medicine. She has published widely on the stress response to anesthesia in horses and on the alleviation of pain in many species.

Based on their years of experience in the field of veterinary anesthesia and pain management, the Veterinary Amici respectfully present the Court with information concerning the methods by which humane euthanasia is achieved in animals, and the difficulties involved in achieving humane euthanasia using the chemicals and procedures called for in Kentucky's lethal injection protocol.

## SUMMARY OF ARGUMENT

### *Humane euthanasia*

The term euthanasia comes from the Greek words "eu" and "thanatos," which combined mean "well death" or "dying well." The primary goal of veterinarians who euthanize animals is to achieve death humanely, avoiding needless pain and suffering of the patient. *See* Ky. Rev. Stat. § 258.095(12) ("[E]uthanasia' means the act of putting an animal to death in a humane manner. . ."). To this end, veterinarians carefully consider the characteristics of the drugs that may be administered for the purpose of euthanasia, avoiding those that would cause unnecessary pain.

Euthanasia can be divided into two parts: (1) rendering an animal unconscious, followed by (2) inhibition of brain, heart, or both brain and heart function. An unconscious, properly anesthetized animal will not undergo physical or mental distress during the euthanasia process. Intravenous injection of an anesthetic drug most reliably and commonly produces this state of unconsciousness. Injection of increasing amounts of an anesthetic produces changes to a patient's mental state from light sedation, to unconsciousness, to profound brain depression and death. In clinical practice, veterinary anesthesiologists use the term "surgical plane of anesthesia" to define a particular point in the middle of this progression characterized by unconsciousness, loss of reflex muscle response, and attenuation of the stress responses of the body. Veterinarians take care to keep their patients in or beyond the surgical plane of anesthesia during the euthanasia process.

The preferred method for humane euthanasia by veterinarians – and the one required under Kentucky law – involves the use of a euthanasia solution that contains a single drug, sodium pentobarbital. 201 Ky. Admin. Regs. 16:090 § 5(1). Sodium pentobarbital is a long-acting anesthetic that quickly places the patient in a deep, surgical plane of anesthesia when injected intravenously. An overdose of sodium pentobarbital causes the patient to move past a surgical plane of anesthesia to profound brain depression resulting in death. Significantly, all this occurs with only transient and minimal pain to the patient associated merely with the venipuncture itself because the patient is unconscious.

As explained herein, Kentucky's current lethal injection protocol would not meet the minimum standards for the humane euthanization of animals.

***The Kentucky lethal injection protocol***

Kentucky's lethal injection protocol does not call for the use of sodium pentobarbital. Rather, the best available information about Kentucky's protocol suggests that death is achieved by the intravenous injection of three different drugs. Specifically, the inmate first is injected with three grams of sodium thiopental, which is an "ultra short-acting barbiturate" intended to anesthetize – but not kill – the inmate. *Baze v. Rees*, No. 04-CI-01094, 2005 WL 5797977 (Ky. Cir. Ct. July 8, 2005), J.A. 762. Following a saline flush, the inmate is injected with fifty milligrams of pancuronium bromide, a neuromuscular blocking agent used to paralyze the inmate's voluntary muscles. *See id.* at 763-64. After another saline flush, the inmate is finally administered two hundred and forty milliequivalents of potassium chloride, which results in an alteration in impulse generation in the heart, leading to cessation of cardiac activity and directly causing death. *Id.*

Two of the three drugs used in the Kentucky protocol – pancuronium bromide and potassium chloride – cause severe pain and suffering when administered to a patient who is conscious. For that reason, many states, including Kentucky, do not allow pancuronium bromide to be used to euthanize animals, and veterinary standards prohibit the use of potassium chloride unless a patient is unconscious. This unconsciousness must be maintained throughout the euthanasia process.

Although Kentucky's protocol provides for an initial injection of anesthetic in the form of sodium thiopental, there is a danger that this injection is insufficient to achieve or maintain the state of unconsciousness a veterinarian would require before using potassium chloride to euthanize an animal. Sodium thiopental is an ultra short-acting barbiturate whose anesthetic effects wear off quickly. If there is any delay during an execution and no additional dose of sodium thiopental is administered, there is a risk that the drug's effects will diminish, resulting in the inmate being conscious at the time the other two drugs are administered and experiencing pain from those drugs. Moreover, even without a delay, the duration of the anesthetic effect of the sodium thiopental will be abbreviated if the proper dose is not injected. (This is especially true if the predetermined three-gram dose, which is given to all inmates without any consideration for their weight, proves insufficient.) The likelihood of an inappropriate dose of sodium thiopental is increased when those individuals responsible for the administration of the drug during an execution are not specifically trained to administer such anesthetics.<sup>2</sup>

The risk of inappropriate depth of anesthesia prior to the administration of the pancuronium bromide and potassium chloride is aggravated by the fact that the Kentucky protocol does not allow for the assessment necessary under veterinary standards to determine whether a surgical plane of anesthesia has been reached

---

2. Although greater doses of sodium thiopental may decrease the risk that its anesthetic effects will wear off, there exist other anesthetics (such as sodium pentobarbital) whose half-lives are much longer.

or exceeded. Kentucky protocol does not require an individual trained in anesthesiology to determine that the inmate is unconscious before the injection of either pancuronium bromide or potassium chloride, let alone both. Unlike standard practice in veterinary medicine, there appears to be no requirement in Kentucky that the inmate be observed, or that executioners monitor or perform any tests on the inmate, during the execution process. To the contrary, publicly available information regarding lethal injection procedures indicates that there is no observer – much less a trained observer – in close enough proximity to the inmate to determine the plane of anesthesia. In contrast, a veterinarian euthanizing an animal continuously evaluates a number of physiologic parameters to ensure that the animal is anesthetized to an appropriate depth before administering a drug that causes the animal's death. This evaluation requires constant contact with, and monitoring of, the patient to confirm that the proper level of anesthesia is maintained.

Further complicating the evaluation of an individual's depth of anesthesia is the use of a neuromuscular blocking agent, such as the pancuronium bromide used in the Kentucky protocol. In the context of veterinary euthanasia, pancuronium bromide is unnecessary to bring about death. The Veterinary Amici are unaware of any veterinarian or veterinary group that advocates the use of neuromuscular blocking agents during the euthanasia procedure. Because pancuronium bromide paralyzes the patient, it inhibits the veterinarian's ability to determine the patient's level of consciousness. A patient who has been injected with pancuronium bromide would appear to the eye to be anesthetized when in fact

the patient could be fully conscious of the pain suffered as a result of the potassium chloride injection. In addition, pancuronium bromide itself would cause suffering in an inadequately anesthetized patient. As a neuromuscular blocker, pancuronium bromide inhibits all of the patient's voluntary muscular functions, including breathing. If a patient is injected with pancuronium bromide before reaching a surgical plane of anesthesia, the patient will experience the feeling of suffocation while conscious.

In sum, Kentucky's procedures for lethal injection do not meet the minimum standards of care used by veterinarians to provide for the humane euthanization of animals. Based on their vast experience with euthanasia and the drugs involved in the Kentucky lethal injection protocol, the Veterinary Amici offer the information herein to assist the Court in determining whether inmates sentenced to death are subjected to a foreseeable danger of unnecessary pain and suffering during the execution process under Kentucky's current protocol.

**ARGUMENT****I. THE PROTOCOL FOR THE USE OF POTASSIUM CHLORIDE IN KENTUCKY EXECUTIONS FAILS TO COMPLY WITH MINIMUM VETERINARY STANDARDS FOR HUMANE EUTHANASIA OF ANIMALS****A. Humane Euthanasia Prohibits the Use of Potassium Chloride in a Conscious Patient**

The use of potassium chloride, the drug that results in death under the Kentucky lethal injection protocol, fails to comply with minimum veterinary standards for the humane euthanasia of animals. A potassium chloride solution for intravenous injection contains high concentrations of potassium and chloride ions, which cause severe pain and suffering in a conscious patient from the moment of injection. *See Harbison v. Little*, No. 3:06-1206, 2007 WL 2821230, at \*11 (M.D. Tenn. Sept. 19, 2007) (“It is undisputed that, without proper anaesthesia, the administration of pancuronium bromide and potassium chloride, either separately or in combination, would result in a terrifying, excruciating death.”). Specifically, an injection of potassium chloride irritates the inner walls of a patient’s veins, which are particularly sensitive to potassium. Potassium chloride ultimately results in alterations in impulse generation in the heart, leading to cessation of cardiac activity and death.

Because intravenous injection of potassium chloride causes severe pain to a conscious patient, American Veterinary Medical Association (“AVMA”) standards

provide that potassium chloride may be administered only to a patient who has reached a surgical plane of anesthesia. AVMA standards also provide that it is of the “utmost importance” that the anesthesia be administered by someone trained and knowledgeable in anesthetic techniques:

It is of utmost importance that personnel performing this technique are trained and knowledgeable in anesthetic techniques, and are competent in assessing anesthetic depth appropriate for administration of potassium chloride intravenously. Administration of potassium chloride intravenously requires animals to be in a surgical plane of anesthesia characterized by loss of consciousness, loss of reflex muscle response, and loss of response to noxious stimuli.

AVMA Guidelines on Euthanasia (June 2007) (formerly the 2000 Report of the AVMA Panel on Euthanasia) at 12, available at [http://www.avma.org/issues/animal\\_welfare/euthanasia.pdf](http://www.avma.org/issues/animal_welfare/euthanasia.pdf) (hereinafter, “AVMA Report”). Because of the painful effects of the drug, use of potassium chloride on a conscious patient is “unacceptable” and “absolutely condemned” in humane euthanasia. See AVMA Report at 12. Thus, a veterinarian may administer potassium chloride only if he can first ascertain that unconsciousness has been reached.



**B. A Veterinarian Following Kentucky’s Lethal Injection Protocol Would Not Be Able to Ensure That a Patient Was at a Surgical Plane of Anesthesia**

A surgical plane of anesthesia is described as “loss of consciousness, loss of reflex muscle response, and loss of response to noxious stimuli.” AVMA Report at 12. Although use of potassium chloride on an animal that has not reached this state is “absolutely condemned” by the AVMA, *see id.*, Kentucky’s lethal injection protocol appears to include no procedures to ensure that an inmate has reached a surgical plane of anesthesia before the injection of potassium chloride. Nor are steps taken to ensure that the surgical plane of anesthesia, once established, is maintained or exceeded.<sup>3</sup> *See Baze, J.A.* 764 (finding that Kentucky’s lethal injection protocol does not use an electrocardiogram, a blood pressure cuff or a Bispectral Index monitor during administration of the drugs to monitor for consciousness).

In veterinary medicine, evaluating whether a patient has achieved an appropriate plane of anesthesia is both a science and an art. It is extremely difficult for an untrained individual to appropriately assess a patient’s anesthetic depth, and veterinarians rely on their skill and experience to do so. The observer must perform a variety of tests to assess the level of consciousness throughout the procedure and must be able to consider and perceive sometimes subtle clues from the patient.

---

3. An inmate could be conscious either because the individual has not yet lost consciousness or because he has regained consciousness after being anesthetized.

Typically, a veterinarian, or a trained assistant, maintains constant contact with a patient throughout the process of administering anesthesia. In determining whether the patient is sufficiently anesthetized, a veterinarian assesses the level of consciousness by direct evaluation of the patient's physiologic parameters. Among the many vital signs considered are the patient's muscle tone and the level of the patient's muscle relaxation. A veterinarian also assesses the position of the eye and the presence or absence of any eye movement. The patient's respiratory and heart rates must be monitored. The veterinarian also tests the patient's reaction to stimuli by applying mildly painful stimuli and observing any movement by the patient. The veterinarian touches the patient to help assess these variables, and relies on monitors for data such as blood pressure and heart rate. Such steps are necessary to ensure that the patient has reached the desired surgical plane of anesthesia, and require an experienced veterinarian to touch and observe the patient at close proximity. Because a variety of factors must be considered, the process of examining the patient takes several minutes, not merely a glance.

In contrast, Kentucky's lethal injection protocol appears to make no provision for an appropriate examination of an inmate's consciousness during the anesthetic process, much less by a physician or medical professional experienced in administering anesthesia. Rather, most of the observers and the individuals performing the lethal injection typically remain in a separate room from which they would be unable to evaluate the inmate for consciousness during the execution. For the individuals who are in the execution

chamber, there is no indication that these persons remain in sufficiently close proximity to the inmate to perform any of the above-described tests.

The risk of consciousness is not merely theoretical. Evidence regarding executions performed using the same three-drug combination of sodium thiopental, pancuronium bromide and potassium chloride called for in Kentucky's lethal injection protocol suggests that a number of inmates appeared to have retained consciousness throughout the execution. *See, e.g., Morales v. Tilton*, 465 F. Supp. 2d 972, 980 (N.D. Cal. 2006) (noting that several California inmates may have remained conscious despite the purported injection of five grams of sodium thiopental, two grams more than the dose called for in Kentucky's lethal injection protocol); Florida Corrections Commission, Supplemental Report - Methods of Execution Used by States (1997) at 10 (*formerly available at <http://www.fcc.state.fl.us/fcc/reports/reports.html>*) (acknowledging that some recipients of the three-drug combination underwent a "violent reaction to lethal drugs," raising grave concerns that the inmates were not, in fact, fully anesthetized prior to the potassium chloride injection).

Finally, proper veterinary procedure demands that a veterinarian administering euthanasia solution to a patient ensure that all of the euthanasia solution was delivered intravenously. Sodium thiopental must be properly administered intravenously, which can be extremely difficult if not impossible for an untrained individual. If the anesthetic is not properly injected directly into the patient's vein, the medication will leak into surrounding tissue, thus lessening the effectiveness

of the intended dosage. With a pH of 11, sodium thiopental is very alkaline, and therefore would produce a burning sensation and tissue damage if the drug were not administered intravenously.

Given the myriad of potential problems created by Kentucky's complex lethal injection procedure, the administration of drugs by inexperienced personnel with inadequate training serves only to increase the risk that the sodium thiopental anesthetic will not be properly delivered to the inmate, and that the inmate will remain inadequately anesthetized when the potassium chloride is administered. Without providing for careful monitoring of an inmate's level of consciousness, Kentucky's lethal injection protocol falls far short of the precautions required in humane veterinary euthanasia.

**C. The Short-Acting Nature of Sodium Thiopental Makes It More Difficult to Maintain a Surgical Plane of Anesthesia Than the Anesthetic Used in Veterinary Euthanasia**

The AVMA standards for euthanasia indicate that the ideal barbiturate for use in euthanasia is "potent, long-acting, stable in solution and inexpensive." AVMA Report at 11. Consistent with these standards, Kentucky's animal euthanasia regulations allow only for the use of sodium pentobarbital for euthanasia of animals. 201 Ky. Admin. Regs. 16:090 § 5(1).<sup>4</sup> As used in

---

4. AVMA guidelines do not limit the barbiturate to sodium pentobarbital. Sodium pentobarbital is the preferred method, however.

euthanasia, sodium pentobarbital rapidly produces unconsciousness and then depresses the areas of the brain responsible for respiratory and cardiovascular control. With a single injection of sodium pentobarbital, the patient rapidly progresses from a light to deep level of anesthesia and ultimately dies.

In contrast to the Kentucky standard for euthanasia in animals, the Kentucky lethal injection protocol does not use sodium pentobarbital to achieve anesthesia and death for inmates. Rather, it calls for the use of sodium thiopental, and then only for the purpose of anesthesia. Sodium thiopental, however, is considered an “ultra short acting” barbiturate anesthetic. *Baze, J.A. 762*. Its anesthetic effects therefore wear off more rapidly than those of sodium pentobarbital. As such, if sodium thiopental were used to euthanize a veterinary patient, the need for the veterinarian to evaluate for consciousness would be all the more critical.

## **II. THE USE OF PANCURONIUM BROMIDE MASKS CONSCIOUSNESS AND IS CONTRARY TO HUMANE VETERINARY EUTHANASIA**

### **A. Pancuronium Bromide Causes a Conscious Patient to Experience Suffocation**

Pancuronium bromide, the second drug administered under the Kentucky lethal injection protocol, does not contribute to anesthesia or unconsciousness. It is not an anesthetic or an analgesic. It serves no therapeutic purpose whatsoever. Rather, pancuronium bromide is a neuromuscular blocking agent that completely paralyzes a patient's voluntary muscles. A conscious patient who is administered pancuronium bromide will endure pain and mental distress. Specifically, a conscious patient would be aware of the need to breathe, the inability to do so and the terrifying experience of suffocation. *See Harbison, 2007 WL 2821230, at \*11* ("The basic mechanics [of pancuronium bromide and potassium chloride] are that the inmate would first be paralyzed and suffocated (because the paralysis would make him unable to draw breath), then feel a burning pain throughout his body, and then suffer a heart attack while remaining unable to breathe."). The inmate's suffering, however, would not be readily apparent to observers, however, because the lack of muscular movement and inability to communicate would make the inmate appear calm.

## **B. Pancuronium Bromide Inhibits the Ability to Assess a Patient's Consciousness**

The muscle paralysis caused by pancuronium bromide masks indicia of consciousness, making it even more difficult for observers to ascertain whether the patient is unconscious. As described above, determining whether a patient has achieved a surgical plane of anesthesia involves careful observation, including observation of the patient's muscle movements and response to stimuli. Paralyzing the patient makes it far more difficult for a veterinarian to effectively determine the patient's level of consciousness. The use of pancuronium bromide therefore could create the impression that a patient is unconscious, calm or serene when the patient is actually in extreme pain or suffering.

Several of the Veterinary Amici advised the Court of this precise risk in *Hill v. McDonough*, 126 S. Ct. 2096 (2006), in connection with Florida's lethal injection protocol, which is for all pertinent purposes identical to that employed in Kentucky. Br. of Amici Curiae Drs. Kevin Concannon, Dennis Geiser and Glenn Pettifer Supporting Pet., *Hill v. McDonough*, 126 S. Ct. 2096 (2006) at 14. Less than one year after the *Hill amicus* brief was filed, Angel Diaz was put to death by lethal injection. Following reports that the execution was botched, then-Governor Bush created a Commission on Administration of Lethal Injection, which was "unable to reach a conclusion as to whether inmate Angel Diaz was in pain during the execution." *Lightbourne v. McCollum*, No. SC06-2391, 2007 WL 3196533, at \*2 (Fla. Nov. 1, 2007). Similarly, a trial court reviewing evidence about the Diaz execution found that "[i]t is unclear and disputed whether inmate Diaz suffered any pain. It is unclear exactly how conscious or unconscious

inmate Diaz was after [he was injected with sodium thiopental]. . . . No witness testified that inmate Diaz screamed or yelled after the injection of pancuronium bromide or potassium chloride.” *Id.* at \*15. It was precisely this inability to determine the level of consciousness or pain that the Veterinary Amici had cautioned against in their *Hill* brief. Failure to communicate pain could be the result of (i) the absence of pain or (ii) the inability to express the pain. Use of a paralytic agent, specifically pancuronium bromide, renders the subject unable to express pain and thereby inhibits the ability to determine whether the subject is experiencing any pain, and if so, the severity of the pain.

In a veterinary context, pancuronium bromide is wholly superfluous to the goal of humane euthanasia. Its only effect would mask any suffering endured by the patient and interfere with an assessment of consciousness. Its use as contemplated by the Kentucky lethal injection protocol is therefore contrary to veterinary standards and humane euthanasia of animals.<sup>5</sup>

---

5. In addition to Kentucky, at least 22 other states have prohibited the use of neuromuscular blocking agents in euthanizing animals, either expressly or by specifically mandating the use of a method such as sodium pentobarbital. *See, e.g.*, Ala. Code § 34-29-131; Ala. Admin. Code r. 930-x-1-.36; Alaska Stat. 08.02.050; Ariz. Rev. Stat. Ann. § 11-1021; Colo. Rev. Stat. § 18-9-201; Del. Code Ann. tit. 3, § 8001; Fla. Stat. § 828.058; Ga. Code Ann. § 4-11-5.1; 510 Ill. Comp. Stat. 70/2.09; Kan. Stat. Ann. 47-1718(a); La. Rev. Stat. Ann. § 3:2465(C)(1); Me. Rev. Stat. Ann. tit. 17, § 1044; Md. Code Ann., Crim. Law § 10-611(a)(3); Mass. Gen. Laws Ann. ch. 140, § 151A; Mo. Ann. Stat. § 578.005(7); N.J. Stat. Ann. § 4:22-19.3; N.Y. Agric. & Mkts. Law 374(2-b); Okla. Stat. tit. 4, § 501(c); S.C. Code Ann. § 47-3-420(A); Tenn. Code Ann. § 44-17-303(c); Tex. Health & Safety Code Ann. § 821.052(a); W. Va. Code Ann. § 30-10A-8; Wyo. Stat. Ann. § 33-30-216.



### III. THE PREFERRED METHOD OF HUMANE EUTHANASIA IN ANIMALS IS THE USE OF SODIUM PENTOBARBITAL ALONE

In contrast to the drugs called for in Kentucky's lethal injection protocol, the preferred method for euthanasia of veterinary patients is intravenous injection of a solution that contains a barbiturate called sodium pentobarbital. Sodium pentobarbital depresses the central nervous system, with loss of consciousness progressing to anesthesia. With a sufficiently large overdose of the drug, deep anesthesia progresses to apnea and ultimately cardiac arrest within a matter of minutes. Use of sodium pentobarbital results in rapid loss of consciousness and minimal or transient pain associated merely with insertion of the needle. AVMA Report at 11. Moreover, it is potent, long-acting, stable in solution and inexpensive.

Consistent with the goal of achieving death in animals in the most humane manner possible, Kentucky veterinary law mandates that humane euthanasia be accomplished by the use of a single drug: sodium pentobarbital. 201 Ky. Admin. Regs. 16:090 § 5(1).<sup>6</sup> This avoids the use of either pancuronium bromide or potassium chloride. It thus makes irrelevant the fact that “[i]t is undisputed that, without proper anesthesia, the administration of pancuronium bromide and potassium chloride, either separately or in combination, would result in a terrifying, excruciating death.” *Harbison*, 2007 WL 2821230, at \*11.

---

6. The Kentucky regulation allows only two options: sodium pentobarbital, or sodium pentobarbital with lidocaine. Lidocaine is a common local anesthetic.

**CONCLUSION**

For all the foregoing reasons, the Veterinary *Amici* respectfully submit that the protocol for execution by lethal injection, as presently articulated by the State of Kentucky, fails to comport with veterinary standards for humane euthanasia.

Respectfully submitted,

SIMONA G. STRAUSS

*Counsel of Record*

LUCIA MACDONALD

GEORGE R. MORRIS

ANGELA M. MOORE

SIMPSON THACHER & BARTLETT LLP

2550 Hanover Street

Palo Alto, California 94304

(650) 251-5000

*Counsel for Amici Curiae*