

DYING TO LEARN

Exposing the
supply and use
of dogs and cats
in higher education



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Preface

Animalearn, the educational division of the American Anti-Vivisection Society (AAVS), serves as a resource for educators interested in implementing effective methods of humane science education into their curricula. In carrying out this mission, we travel to national education conferences, delivering workshops and conducting presentations on how teachers and professors can use the latest innovations in undergraduate and graduate life science, veterinary, and medical education. We also work with students who wish to obtain their life science, veterinary, or medical education without harming animals, and in conjunction with Dr. Lynette Hart,¹ published a template of best practices for students wishing to establish a student choice policy² at their college or university.³ Animalearn also houses The Science Bank, which is the largest free loan program in the United States for alternatives to dissection and vivisection for K-12, college, university, veterinary, and medical education. The Science Bank offers modern, humane alternatives to using animals, including CD-ROMs, models, mannequins, and simulators.

Since Animalearn's inception in 1990, we have received many inquiries from educators and students about the origins of animals being used for educational purposes in the United States. They are often surprised to learn that dogs and cats—animals that many Americans have in their homes as pets—are not only used, but are also harmed and even killed for educational purposes. Many question where schools are obtaining these animals. Due to the increasing numbers of people being forced to surrender their pets⁴ to pounds⁵ because of the current foreclosure crisis in the United States, we have received questions about whether former companion animals are being sold for educational and scientific use. We found that available information to answer these questions was lacking and decided to investigate the acquisition and use of dogs and cats at public colleges and universities across the U.S.

After careful analysis, we present *Dying to Learn: Exposing the Supply and Use of Dogs and Cats in Higher Education* with the goal of providing a detailed look into how schools obtain dogs and cats, and what happens to our pets in campus labs. We believe that the evidence will be startling to anyone who shares a home with a beloved companion animal and who considers a dog or cat a part of the family. The findings point to failures in the system that seeks to provide reassurance to the public that animals are used appropriately and only under compelling circumstances in science, including science education.

Animalearn works to constructively engage with the educational community by providing resources and identifying solutions. In *Dying to Learn: Exposing the Supply and Use of Dogs and Cats in Higher Education*, we include educationally sound solutions to replace harmful use of animals in higher education. With the extensive array of high-quality alternatives to harmful animal use available, and the number of renowned institutions of higher education implementing them into their curricula, we encourage those colleges and universities still using animals to explore and use these alternatives. Never before have advances in modern technology offered so many opportunities for learning without having to harm companion animals or other animals. Embracing new, humane technologies teaches students an enduring lesson about the value of 'life' in life science education.

Acknowledgments

We wish to acknowledge the contributions of our colleagues at the American Anti-Vivisection Society, each of whom provided excellent suggestions and research support. In particular, we thank AAVS Executive Director Tracie Letterman, Esq. for her daily guidance and legal expertise regarding the requirements of the Animal Welfare Act, AAVS Policy Analyst, Crystal Miller-Spiegel, M.S., who was vital in helping to research and investigate university

¹ Dr. Lynette Hart. Professor in the Department of Population Health and Reproduction in the School of Veterinary Medicine at the University of California-Davis.

² Allowing students the right to choose an alternative to dissection or other animal use, *infra* pg. 35.

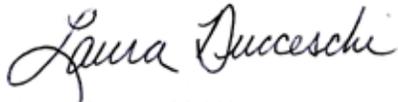
³ Ducceschi, L., L. A. Hart, and N. Green. "Guidelines for Development of Student Choice Policies Regarding Dissection in Colleges and Universities: An Ethnographic Analysis of Faculty and Student Concerns." *AATEX, Proceedings from the 6th World Congress on Alternatives & Animal Use in the Life Sciences*. 14 (2007) 21-25 Aug. 273-276.

⁴ Dr. Stephen Zawistowski. Executive Vice President of ASPCA Programs. "Economic Forecast: One Million Pets May Lose Homes." ASPCA. 5 Feb. 2009. <http://www.aspc.org/news/national/02-20-09.html>.

⁵ For a definition of pound or shelter, see 9 C.F.R. § 1.1. We will be using the terms interchangeably throughout this report.

records which provided a wealth of information crucial in the findings of this report, and to a local veterinarian whose timely arrival as our resident consultant was an invaluable aid to our understanding of clinical veterinary education protocols.

We also wish to acknowledge the many people external to our organization who provided key information and patiently responded to our inquiries, including the colleges and universities who took the time to answer our survey and follow up questions. External reviewers helped us clarify our material and provided perspective on the value of this endeavor; their encouragement and specific comments were invaluable. Researching this information and making sense of it was very much a group effort and we thank all those who contributed to its completion. We dedicate this effort to our family companion animals, past and present, who enrich our lives beyond measure.



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April 24, 2009



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SECTION I: Introduction

A. Background

Companion animals share our homes and are an important part of our lives and families. In fact, over 72 million dogs and 82 million cats reside in U.S. households,⁶ and we spent over \$41 billion on the needs of our companion animals in 2007, including food and veterinary care.⁷ Nevertheless, a significant number of dogs and cats continue to be harmed or killed for use in research, testing, and education, even when there are effective and more humane methods available. Other than their fate, there is little difference between the beagle or tabby who shares our home and is part of our family and the beagle or tabby who is vivisected in a teaching laboratory. As such, the harm to companion animals in education raises ethical questions about the use of animals as “tools” for teaching, particularly when high quality, educationally effective, and ethically sourced alternatives are available.

Dogs and cats, as well as other animals, are afforded legal protections under the Animal Welfare Act (AWA). The AWA regulates the use of animals⁸ by dealers, exhibitors, transporters, and research facilities, and includes minimum standards for the care and treatment of animals used in education at the university and graduate level.⁹ Since its inception, the AWA has been amended several times, and some of the intentions of the 1985 amendments aimed to decrease animal suffering by encouraging the use of alternatives.¹⁰ To further this purpose, Congress provided that investigators who wish to use animals for research or teaching purposes must first consider alternatives to any procedure likely to produce pain or distress in an animal and eliminate the unnecessary duplication of experiments on animals.¹¹ If an investigator determines that adequate alternatives are not available, then a written narrative description of the “methods and sources” reviewed must be provided in the animal use protocol submitted to their institution’s Institutional Animal Care and Use Committee (IACUC).¹²

Despite the intent of the AWA, companion animals and other animals continue to suffer unnecessarily to provide educational experiences for undergraduate, graduate, veterinary, and medical students at some colleges and universities. Recently, however, many colleges and universities have been moving towards offering students alternatives, due in large part to student advocacy efforts and the opportunities presented by advances in technology.¹³

In this report, Animalearn presents the most current, detailed information about the extent to which dogs and cats are used in higher education and the purposes for which they are used. The report focuses in particular on how these animals are obtained (through dealers, including biological supply companies, and pounds), and examines the reports of misconduct and animal mistreatment associated with these sources. Comprehensive resources for implementing the latest humane, educationally sound alternatives in higher education curricula are also provided. Animalearn also plans to release a case study to examine how well IACUCs are reviewing animal use protocols to minimize animal use and suffering.

⁶ American Veterinary Medical Association. U.S. Pet Ownership and Demographics Sourcebook. 2007. AVMA. 22 Sep 2008<<http://www.avma.org/reference/marketstats/ownership.asp>>.

⁷ American Pet Products Manufacturers Association. “Pet Pampering and Pet Health Insurance Drive Pet Industry Sales to Another All Time High.” 11 Feb. 2008. APPMA Press Release. 22 Sep 2008<http://www.petroglyphsnm.org/covers/top_animal_stories_of_2007.html>.

⁸ The AWA defines “animal” as “any live or dead dog, cat.....but such term excludes (1) birds, rats of the genus *Rattus*, and mice of the genus *Mus*, bred for use in research.....” 7 U.S.C. § 32132 (g).

⁹ Animal Welfare Act. 7 U.S.C. § 2131; Research facilities are defined as “any school (except an elementary or secondary school), institution, organization, or person that uses or intends to use live animals in research, tests, or experiments and that (1) purchases or transports live animals in commerce, or (2) receives funds....” *id.* § 2132 (e).

¹⁰ Animal Welfare Act. 131 Cong. Rec. 29,155 (1985).

¹¹ Animal Welfare Act. 7 U.S.C. § 2143 (a)(3)(B) and *id.* § 2131 (c) (3); Also see 9 C.F.R. § 2.31 (d)(1)(ii) and (d)(1)(iii).

¹² The AWA establishes the Institutional Animal Care and Use Committee (IACUC) as a self-regulating entity that must be established by institutions that use animals for research or instructional purposes to oversee and evaluate all aspects of the institution’s animal care and use program. For more information see 9 C.F.R. § 2.31.

¹³ Mangan, Katherine. “Medical Schools Stop Using Dogs and Pigs in Teaching.” The Chronicle of Higher Education. 12 Oct. 2007: A12.

B. Collection of Information

To estimate the use of dogs and cats in higher education in the U.S., we queried all the public colleges and universities¹⁴ located within a sample of 24 states (175 institutions total).^{15,16} Many of these schools also have veterinary and medical colleges, which were included in our analysis. We selected a sample of states that represent the nine geographical regions¹⁷ of the United States (See Appendix A Fig. 1). Although we did not review IACUC records for all relevant colleges, universities, and other institutions in the U.S., our sample of 175 locations is both broad and diverse. The procurement and use of dogs and cats for educational purposes in other colleges and universities not included in our sample would likely be similar.

Data on the use and source of dogs and cats for teaching purposes at the 175 public colleges and universities located within our sample were acquired via three methods:

1. Institutional Animal Care and Use Committee (IACUC) public records:

Animalearn submitted requests under state open records laws to the IACUCs of the 175 institutions for information identifying the source from which dogs and cats were purchased or acquired, and information on the number and type of dogs and cats purchased or acquired for *teaching purposes* from 2005-2007.¹⁸ Of the requests sent, 92 responses were obtained upon the release of the report.

2. United States Department of Agriculture (USDA) inspection reports and license renewal applications:

Animalearn submitted Freedom of Information Act (FOIA) requests to the USDA for licensed Class A dealers,¹⁹ random source Class B dealers,²⁰ and biological supply companies²¹ to obtain information on sales of dogs and cats and records of regulatory violations.

3. Surveys of university and college biology departments:

Animalearn surveyed 150 biology departments from the 175 institutions²² regarding their use of live and/or dead dogs and cats, how they are used, and whether or not students are permitted to use alternatives in lieu of traditional animal dissections and laboratory experiments. Response rate to this survey was 20%. Animalearn made several follow-up efforts with respondents to ensure accuracy of the information.

C. Findings and Recommendations

Based upon Animalearn's review of the acquisition and use of dogs and cats by publicly funded higher educational institutions, we present the following findings and recommendations:

1. Schools are engaging in harmful use of dogs and cats for teaching purposes.

Findings: Schools are harming and killing dogs and cats to fulfill educational objectives that can be met by alternatives. We discovered teaching exercises, such as terminal surgery labs at veterinary and medical schools in which dogs are killed following the procedure; clinical skills training labs for veterinary students, which involve euthanizing live dogs or cats in order to teach skills to students; and animal dissection, which involves using the cadavers of cats, dogs, and other animals to teach anatomy and physiology. Many animals are killed specifically for students to use, even though there are viable alternatives available that are being used effectively by other schools (See Appendix B.1.).

¹⁴ Public colleges and universities with IACUC committees were selected because these schools' records are open to public review and records on the acquisition and use of dogs and cats in education must be maintained.

¹⁵ Alabama, Arizona, California, Colorado, Connecticut, Florida, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Michigan, Minnesota, Nebraska, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Texas, Utah, Washington, and Wisconsin were selected.

¹⁶ Animalearn later requested IACUC records from the University of Georgia in order to assist in the College of Veterinary Medicine's interest in phasing out terminal dog surgeries.

¹⁷ New England, Middle Atlantic, South Atlantic, East South Central, East North Central, West North Central, West South Central, Mountain, and Pacific.

¹⁸ Although Animalearn is interested in replacing all types of animals used in education, the report focuses on dogs and cats used in teaching primarily because of the specific recordkeeping requirements for these animals that must be maintained by research facilities. See 9 C.F.R. § 2.35 (b).

¹⁹ See *infra* pg. 30 (defining Class A dealers)

²⁰ See *infra* pg. 18 (defining Class B random source dealers)

²¹ See *infra* pg. 25 (defining Biological supply companies)

²² All biology departments from the 175 institutions for which we could assess that they instructed undergraduates on issues of mammalian biology were surveyed.

Of 92 university records reviewed from 2005-2007 regarding the use of dogs and cats for teaching and training purposes:

52% are using live or dead dogs and cats.

26% are using live dogs and cats.

Of 150 university biology departments in a separate survey conducted in 2008 (20% response rate):

63% are using dead cats to teach anatomy and physiology.

Recommendations: Animalearn recommends that these schools replace the harmful use of animals with alternatives. This can be achieved by:

- *Developing student choice policies to allow alternative use. (We provide a guide to implementing student choice policies in Appendix B.3., and a sample of an ideal student choice policy in Appendix B.4.)*
- *Creating curricula that identify alternatives as the default procedures and include therapeutic uses of animals (e.g. shelter medicine programs) and use of client-donated cadavers for dissection. (We provide a comprehensive description of the latest alternatives available for life sciences, veterinary, and medical education in Appendix B.1.)*
- *Broadening development, funding, and distribution of alternatives.*
- *Providing educators with training opportunities in identifying and using appropriate and effective alternatives.*

2. Schools are acquiring dogs and cats from inhumane sources.

Findings: Schools are obtaining animals from both Class A and Class B dealers (See Appendix A. Tables 1.,2.,3.). Many of these dealers have consistent AWA violations, including falsifying animal records and providing inadequate animal care resulting in routine animal suffering and distress. In addition, schools are going directly to animal pounds to acquire animals, a process commonly called “pound seizure.”

Recommendations: Animalearn recommends that random source animals, which means that they are obtained from animal pounds or shelters,²³ not be used in education. This includes a prohibition on acquiring animals from Class B random source dealers, animal shelters/pounds, or international pounds. This random source animal prohibition should be part of federal law and state law, as well as included in institutional policies. USDA should exercise its authority by revoking and refusing to renew licenses for Class B random source dealers that have consistently violated the law. Rather than acquiring animals from random sources, Animalearn recommends that any animals used for educational purposes be ethically-sourced and used in procedures beneficial or therapeutic to the animal. In addition, Animalearn recommends that animals should not be bred for educational use because it is wasteful and promotes a disregard for life instead of fostering compassion.

²³ USDA defines “Random Source” as “Dogs and cats obtained from animal pounds or shelters, auction sales, or from any person who did not breed and raise them on his or her premises.” See 9 C.F.R. § 1.1.

SECTION II: Animal Use for Educational Purposes and the Adoption of Alternatives

Animals have a long history of being used for dissection and vivisection. Such use has also historically instigated efforts to protect animals from abuse and end the use of animals in education.

In this section, we present the most current information regarding the use of dogs and cats for teaching purposes in public colleges and universities and the extent to which alternatives are being made available to students. We also examine the historical use of animals in education and illustrate the impact that student efforts can have in securing the right to use alternatives to animal use through student choice policies.²⁴

A. Current Use of Dogs and Cats in Higher Education

Our investigation revealed that there are cruel and unnecessary uses of dogs and cats at colleges and universities continuing today in undergraduate, veterinary, and medical education (See Appendix A.).

Of 92 university records reviewed from 2005-2007 regarding the use of dogs and cats for teaching and training purposes:

52% are using live or dead dogs and cats.

26% are using live dogs and cats.

Of 150 university biology departments in a separate survey conducted in 2008 (20% response rate):

63% are using dead cats to teach anatomy and physiology.

Dogs and cats are used for teaching purposes by more than half of colleges and universities.

Examples of dog and cat use in higher education include the killing of dogs and cats for dissection in undergraduate and graduate education; the use of live dogs in terminal surgery labs in veterinary and medical schools; the use of live kittens to teach pediatric intubation techniques;²⁵ and the acquisition of live dogs and cats from dealers, pounds, and shelters who are subsequently killed and used in veterinary clinical skills courses.

1. Dissection

Universities usually purchase dog and cat cadavers from biological supply companies for teaching anatomy and physiology in life science dissection labs, even though there are many alternatives available (See Appendix B.1.). Cats are more commonly used than dogs to teach undergraduate dissection,²⁶ although dogs are also sometimes used. Biological supply companies often have contracts to purchase dog and cat cadavers from pounds and shelters in the United States and Mexico. Many of these cats and dogs were former pets. Biological supply companies make a significant profit²⁷ from selling dog and cat cadavers to colleges and universities.

2. Clinical Skills Training

Veterinary students learn clinical skills through direct handling of dogs and cats. There are benign ways to do this such as shelter medicine and assisting practicing veterinarians. Alternatives for learning specific skills are described in Appendix B. However, many veterinary medical schools purchase or acquire live dogs and cats from dealers, pounds, and animal shelters for use in clinical skills training classes, even though there are viable alternatives available (See Appendix B.1.).²⁸ The dogs and cats usually arrive at the university and are killed prior to their use in training students. For example, a University of Georgia animal use protocol approved purchasing live dogs and cats from random source Class B dealers and acquiring animals directly from animal shelters. The dogs and cats are

²⁴ See also Sec. IV for an overview of how to identify alternatives and implement student choice policies, as well as Appendix B, which provides greater detail.

²⁵ An example would be at University of Connecticut, Storrs, where records indicate that five kittens were acquired in 2007 for use in teaching pediatric intubation techniques. Four kittens were obtained in 2007 by the University of Oklahoma for similar use.

²⁶ This was indicated in Animalearn's 2008 survey of biology departments.

²⁷ Please see Class B Dealers, specifically Biological Supply Companies. *Infra* pg. 25.

²⁸ Please see skills training alternatives for veterinary medical education. Appendix B1, Section 2.

then euthanized for the clinical skills (emergency and non-emergency) laboratory²⁹ in which students learn such procedures as fracture repair and chest tube placement.

3. Terminal Surgery Labs

Some veterinary students, who are learning how to care for and save animal lives, are required to kill healthy animals as part of their education.

Dogs who may once have been people's pets continue to be killed by veterinary students in terminal surgery labs, even though there are effective surgery alternatives³⁰ to replace these labs (See Appendix B.1.). Many veterinary students are surprised to learn that they are required to kill otherwise healthy dogs in order to learn to save the lives of other dogs. Procedures involved in terminal labs include euthanizing a healthy dog after he is used for teaching surgical procedures under anesthesia. Such labs are part of the core curricula or elective courses at various schools of veterinary medicine. For example, at Texas A&M University's College of Veterinary Medicine, students are currently taught emergency veterinary procedures in a laboratory on how to save animal lives. The dogs' chests are cut open, and the students squeeze their beating hearts while euthanasia solution is injected into their veins. The procedure is intended to teach the students how to resuscitate a dying dog.³¹ Unfortunately, these dogs do not recover. When animals are killed in surgery labs, students also miss out on the opportunity to learn post-operative care, including pain management, supportive care, assessing the healing process, etc. Such skills can be gained working with actual animal patients and are just as important as learning surgical procedures.

B. History of Vivisection and Dissection

The historical use of animals for teaching and experimentation is deeply rooted in the study of anatomy and physiology. Though studied for centuries in various cultures, the fields of anatomy and experimental physiology began to progress around 300 B.C. Scientific studies involving the vivisection and dissection of animals included those conducted by notable scientists such as Aristotle, Galen, and Vesalius.³² If the law permitted, human cadavers were also dissected, but the use of animals in vivisection and dissection was generally less mired in ethical or religious concerns. Like today, animals were dissected not only to learn more about them, but also as surrogates for humans.³³

While Greek law prohibited the dissection of human bodies, physician and medical researcher Galen performed countless animal dissections and vivisections (circa 168 A.D.) and claimed that he dissected animals almost every day of his career—not only to enhance his surgical skills but also to learn more about the human body.³⁴ Though his contributions to medicine are widely celebrated, in some instances, Galen's vivisection and dissection of animals, which included dogs, pigs, and macaques, to understand and describe the human body and its functions led to centuries of misunderstandings about human anatomy and physiology. For example, Galen's description of the uterus was based on dogs; the position of the kidneys was based on pigs; and his understanding of the brain was based on cows or goats.³⁵

Though animal and human dissections were used to educate medical students, artists such as Leonardo da Vinci and Michelangelo, who wanted to learn to illustrate their subjects with better accuracy, also conducted dissections.³⁶ They were also performed simply to illustrate the contents of ancient scientific texts.

In the 1500s, Andreas Vesalius, considered to be the founder of modern human anatomy, felt strongly that dissection should be performed as a way to accurately teach students about anatomy instead of using illustrations

²⁹ UGA AUP #A2006-10224.

³⁰ Please see surgical simulation alternatives for veterinary medical education. Appendix B1, Section 2.

³¹ Texas A&M's Animal Use Protocol (AUP) #2006-116.

³² Hart, Lynette A., Mary W. Wood, and Benjamin J. Hart. *Why Dissection?* Oxford, U.K.: Greenwood Press, 2008.

³³ Guerrini, Anita. *Experimenting with Humans and Animals: From Galen to Animal Rights*. Baltimore, MD: The Johns Hopkins University Press, 2003.

³⁴ Nutton, Vivian. "Logic, Learning, and Experimental Medicine." *Science* 5556(2002): 800-801.

³⁵ *Id.*

³⁶ Hart, Lynette A., Mary W. Wood, and Benjamin J. Hart. *Why Dissection?* Oxford, U.K.: Greenwood Press, 2008.

or descriptions in books, as well as to gain new knowledge.³⁷ Vesalius appears to have set the foundation for dissection as a teaching and research tool.

Dissections were performed in theater settings with large numbers of students as the audience. Human cadavers were highly desired, which often led to grave robbing or the use of bodies of executed criminals.³⁸ As legal and ethical concerns about the use of human cadavers led to a decrease in the availability of bodies to dissect, the use of animals, who most considered to be incapable of feeling pain, became increasingly common.

In the early 1900s, the dissection of animals became more common in biology classes. Frog dissection was established in college level courses and eventually was taught in high schools.³⁹ Between 1910 and 1920, dead frogs became commercially available for use in education, and by the 1920s, frog dissection became a routine activity in many high school classrooms.^{40,41}

Animal dissection that included crayfish, grasshoppers, mollusks, starfish, sharks, frogs, fetal pigs, and cats in high school became widespread following the Biological Sciences Curriculum Study, a federally-funded initiative in the 1960s to create science curricula for elementary and secondary school students.⁴² Also as a result, more high schools established advanced biology courses involving dissection of cats, minks, and fetal pigs, as well as an increased use of live animals. Previously, dissection of such animals was more common in college-level comparative anatomy courses.⁴³ In 1988, it was estimated that animal dissection occurred in 75-80% of pre-college level biology classes.⁴⁴

C. Students Advocating for Student Choice Policies and Alternatives

Starting in the late 1800s, coinciding with when frog dissection became commonplace, humane education programs were being initiated in primary schools, and by 1922, many states had passed laws requiring humane education programs.^{45,46,47} However, these curricula mainly emphasized fostering a moral kindness or civility (“character training”) toward animals in order to prevent violent and cruel behavior in children that could later be transferred to fellow humans.

For many students, harming animals for education purposes is a violation of deeply held principles and beliefs.

During the late 1980s and 1990s, when animal dissection became widespread, extending to cats, fetal pigs, crayfish, and sharks, a movement began to give students other options to learn about animal anatomy and physiology without involving harm to animals. For many students, harming animals for educational purposes is a violation of deeply held principles and ethics. Student choice policies have since been enacted in several states for primary and secondary school education, and many colleges and graduate programs have also passed student choice policies. (See Sec. IV for an overview of how to help eliminate the harmful use of animals in education. See Appendix B.3. and

4. for a guide to implementing student choice policies, and Appendix B.1. for a comprehensive description of the latest alternatives available for undergraduate and graduate education.)

³⁷ *Id.*

³⁸ Guerrini, Anita. *Experimenting with Humans and Animals: From Galen to Animal Rights*. Baltimore, MD: The Johns Hopkins University Press, 2003.

³⁹ Orlans, F. Barbara. “Debating Dissection.” *The Science Teacher* 55(1988):36-40.

⁴⁰ *Id.*

⁴¹ Kinzie, Mable B., Richard Strauss, and M. Jean Foss. “The Effects of an Interactive Dissection Simulation on the Performance and Achievement of High School Biology Students.” *Journal of Research in Science Teaching* 30(1993):989-1000.

⁴² Emmons, Marvin B. “Secondary and elementary school use of live and preserved animals.” *Animals in Education: Use of animals in high school biology classes and science fairs*. Ed. Heather McGiffin and Nanice Brownley. Washington, D.C.: The Institute for the Study of Animal Problems. 1980. 43-46.

⁴³ *Id.*

⁴⁴ Orlans, F. Barbara. “Debating Dissection.” *The Science Teacher* 55(1988):36-40.

⁴⁵ The American Anti-Vivisection Society sponsored the Miss B’Kind Club and registered to teach it in the Philadelphia school system starting in 1927.

⁴⁶ Bank, J., and Stephen L. Zawistowski. “The Evolution of Humane Education: Humane education teaches us to approach the world one starfish at a time.” *ASPCA Animal Watch* Fall (1994). ASPCA. 2 Nov 2008<http://www.aspc.org/site/PageServer?pagename=edu_history>.

⁴⁷ Unti, Bernard Oreste. *The Quality of Mercy: Organized Animal Protection in the United States 1866-1930*. Diss. American University, 2002. Ann Arbor: UMI, 2002. 3048289.

1. Primary and Secondary Education

The first student choice policy at the Kindergarten-12th grade (K-12) level was enacted in 1985 in the state of Florida.⁴⁸ However, it was California that received national media attention on the issue of dissection when California high school student Jenifer Graham filed a lawsuit against her school after learning she either had to dissect or accept a lowered biology grade.⁴⁹ Although Ms. Graham's case was settled in August 1988, Jenifer was instrumental in helping California adopt its student choice law in March 1988,⁵⁰ which allows students from K-12 to object to dissection and instead use humane alternatives.⁵¹

Graham's case was supported by animal protection organizations and garnered national attention about dissection. Thus, a movement began to allow students to seek alternatives to the use of animals in education at the secondary level and beyond. A national telephone hotline (1-800-922-FROG)⁵² was even established for students looking for information about alternatives to animal dissection.⁵³ In the first two years of its existence, the hotline received over 16,000 calls from parents and students regarding elementary level courses through college.⁵⁴ In 1996, Animalearn launched its free loan program for alternatives to dissection, The Science Bank, which provides students and educators with humane tools to learn and teach anatomy and physiology without harming animals (See Appendix B.1. for information on alternatives available from The Science Bank).

Student choice policies give students the option to use alternatives to animal use.

Today there are 15 states that have such state laws or policies for K-12 students, including California, Florida, Illinois, Louisiana, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Virginia.⁵⁵ Animalearn and its parent organization, American Anti-Vivisection Society (AAVS), were instrumental in the passage of several of the current state policies, including for their home state of Pennsylvania.⁵⁶

Current States with Student Choice Laws & Resolutions

Florida - Enacted state law in 1985
California - Enacted state law in 1988
 Maine - Enacted Department of Education Policy in 1989
Pennsylvania - Enacted state law in 1992
 Louisiana - Enacted state resolution in 1992
New York - Enacted state law in 1994
Rhode Island - Enacted state law in 1997
 Maryland - All counties enacted policies by 1997
Illinois - Enacted state law in 2000
Virginia - Enacted state law in 2004
Oregon - Enacted state law in 2005
 Massachusetts - Enacted Board of Education Policy 2005
 New Mexico - Enacted Public Education Department Policy 2005
New Jersey - Enacted state law in 2006
Vermont - Enacted state law in 2008
 (Bolded states indicate statewide law.)

⁴⁸ Current statute number is § 1003.47. Added by Laws 2002, c. 2002-387, § 140, eff. Jan 7, 2003. Amended by Laws 2004, c. 2004-357, § 84, eff. July 1, 2004. Prior Laws: Fla.St.2001, § 233.0674. Laws 1985, c. 85-70, § 1.Florida Student Choice Law. The 2008 Florida Statutes. 4 Feb 2009.<http://www.flsenate.gov/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch1003/Sec47.HTM>.

⁴⁹ Orlans, Barbara F. et. al. *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 209-221.

⁵⁰ *Id.*

⁵¹ California Student Choice Law. California Education Code Section 32255-32255.6.4 Feb 2009.<<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=32001-33000&file=32255-32255.6>>.

⁵² Initially sponsored by the Animal Legal Defense Fund, this hotline is now operated by the National Anti-Vivisection Society.

⁵³ Winiarski, Kathryn. "BLACKBOARD; Dissection Hot Line Cuts It." *New York Times* 6 Jan 1991.

⁵⁴ *Id.*

⁵⁵ Animalearn. Laws and Legislation (K-12). Undated. Animalearn. 30 Dec 2008. <<http://www.animalearn.org/lawsandlegislation.php>>.

⁵⁶ Schaeffer, Crystal. "Legislative Empowerment in Schools: Student Choice". *AV Magazine* Fall 2008. 10-11.

2. Colleges and Universities

Unlike secondary and elementary schools, neither private nor public colleges and universities are covered by state student choice laws. As a result, individual institutions prescribe their own guidelines on issues such as dissection and vivisection in the classroom. Fortunately, many college students have voiced their objections to the harmful use of animals and have been successful in encouraging their institutions to create student choice policies at the collegiate level (See Appendix B.3. and 4. for information on creating a student choice policy).

Several universities have established student choice policies, due largely to the perseverance of ethically-minded students.

For example, in 1994, New York's Sarah Lawrence College became the first college to adopt a formal student choice policy, which includes this statement: "Sarah Lawrence College does not require students with ethical objections to participate in dissection. Students who choose to refrain from such activities will be given alternatives that provide similar experiences."⁵⁷ While some colleges and universities have had informal or unwritten student choice policies prior to this, this was the first formal policy adopted by a U.S. college for biology courses.⁵⁸

Since then, several Ivy League and state universities have followed in Sarah Lawrence's ethical footsteps by establishing student choice policies, due largely to the perseverance of ethically-minded students.⁵⁹ According to Animalearn's survey of 150 biology departments at public colleges and universities,⁶⁰ two universities that responded, the University of Illinois Urbana-Champaign and the University of New Mexico-Albuquerque, have a formal student choice policy currently in place for undergraduate courses.^{61,62,63}

Biology departments at six other colleges and universities responding to the survey indicate that they allow alternatives to dissection, but the policy is not formally written and/or made visible to current and prospective students on either university or departmental web pages, or in general Internet searches. These universities are, California State University- Bakersfield; California State University-San Bernardino; Florida International University; University of Colorado-Colorado Springs; University of Wisconsin-La Crosse; and University of Wisconsin- Stevens Point.

In addition to colleges and universities responding to the survey, we are aware of many other colleges and universities that allow alternatives to dissection.⁶⁴ To date, 28 colleges and universities have adopted formal or informal student choice policies, and many more are currently taking the steps to create them on their campuses. To find a list of those colleges and universities with student choice policies go to: http://www.animalearn.org/studentcenter_collegeuniversity04.php.

Animalearn has aided several students and student groups from colleges and universities pursuing policies on their campuses, including the University of Illinois – Urbana Champaign,⁶⁵ Virginia Commonwealth University,⁶⁶

⁵⁷ The Humane Society of the United States. "Sarah Lawrence College Dissection Choice Policy." 1994. HSUS. 15 Dec 2008<http://www.hsus.org/web-files/PDF/ARI/Sarah_Lawrence_College_Policy.pdf>.

⁵⁸ Ducceschi, L., Hart, L., and N.Green. "Guidelines for the development of student choice policies regarding dissection in colleges and universities: An ethnographic analysis of faculty and student concerns." *Proceedings 6th World Congress on Alternatives & Animal Use in the Life Sciences AATEX Special Issue*. (2007): 273-276.

⁵⁹ Animalearn. Colleges and Universities with Student Choice Policies. Undated. Animalearn. 23 Apr 2008. <http://www.animalearn.org/studentcenter_collegeuniversity04.php>.

⁶⁰ Ref. Intro (Collection of Info).

⁶¹ University of Illinois Urbana-Champaign Student Choice Policy for Undergraduate Courses. 5 May 2003. University of Illinois Urbana-Champaign. 7 Jan 2009. <http://www.dissectionchoice.org/EP_03_35.html>.

⁶² Information on whether the university has a formal student choice policy in place was obtained through web searches on university and departmental web pages, and in general Internet searches.

⁶³ Hepner, L. "Winning Alternatives to Dissection at the University of New Mexico." InterNICHE. Undated. InterNICHE. 19 Mar 2009<<http://www.interniche.org/consh/Lhepner.html>>.

⁶⁴ Animalearn. "Colleges and Universities That Do Not Have Policies, But Have Allowed Students to Use Alternatives (List Compiled by NAVS and AAVS)". Updated 20 Aug 2006. Animalearn. 26 Jan 2009. <http://animalearn.org/studentcenter_collegeuniversity05.php>.

⁶⁵ Students Improving the Lives of Animals (University of Illinois Student Group). "EP.03.35, Report to the Senate on Alternatives to Dissection in Undergraduate Courses." 5 May 2003. SILA. 30 Dec 2008. <http://www.dissectionchoice.org/EP_03_35.html>.

⁶⁶ Virginia Commonwealth University Dissection Choice Policy. "Bill in Support of the Conscientious Maintenance of Non-Dissection Degree Paths for Virginia Commonwealth University Monroe Park Campus Undergraduate Students." 21 Feb 2005. VCU. 30 Dec 2008<<http://ramsites.net/~kungae/>>.

and Hofstra University.⁶⁷ In 2007, Animalearn released a research study, later published with Dr. Lynette Hart from the University of California-Davis entitled “Guidelines for the development of student choice policies regarding dissection in colleges and universities: An ethnographic analysis of faculty and student concerns.”⁶⁸ This paper provides a template to assist college students who want to establish student choice initiatives. (See Sec. IV for an overview of how to help eliminate the harmful use of animals in education. See Appendix B.3. and 4. for a guide to implementing student choice policies, and Appendix B.1. for a comprehensive description of the latest alternatives available for undergraduate and graduate education.)

Implementing a Student Choice Policy at Hofstra University

Animalearn has worked with many students from colleges and universities across the United States to establish student choice policies on their campus. In January 2007, Hofstra University, a private university in Hempstead, New York, established a student choice policy after years of hard work by students and supportive faculty members. Animalearn worked with the students from Hofstra University through the entire process, from proposal of the policy to institution of the policy.

Students in undergraduate biology classes at Hofstra wanted the opportunity to use alternatives to dissection and the Students’ Organization for Animal Rights (SOAR) worked with their advisor and the biology faculty and department chair to agree upon a policy.¹ Biology faculty borrowed alternatives to dissection from Animalearn’s The Science Bank to assess the feasibility of various alternatives for their classes. There were also several meetings involving students, faculty, and Animalearn representatives to discuss the administrative scope of the policy.

The next step was to involve Hofstra administration to discuss the viability of a policy, who considered the information, letters of support from other universities, and scientific data regarding student choice policies and their pedagogical credibility. Students brought the issue to the student government, who put a referendum up to a vote to the Hofstra student body asking if students with religious and ethical objection to dissection should be allowed an alternative. Students voted overwhelmingly that students should be able to use an alternative to dissection. Finally, the University Senate passed the policy, giving students the right to an alternative to harmful animal use.

Determination and hard work on the part of SOAR led to a student choice policy that benefits all current and future students on campus who do not want to harm animals while pursuing their education.² Hofstra’s Animal Dissection Policy is available at: http://www.hofstra.edu/Academics/Colleges/HCLAS/BIO/bio_animaldissection.html.

3. Veterinary Education

An increasing number of veterinary students have also objected to harmful animal use in favor of humane alternatives (See Appendix B.1. for information on alternatives). One of the first veterinary students reported to object to the harmful use of animals in veterinary education was from the University of Georgia. In 1985, this student withdrew from the school to avoid the third-year survival surgery labs.⁶⁹ In 1987, two veterinary students

⁶⁷ Hofstra University Animal Dissection Biology Policy. Undated. Hofstra University. 30 Dec 2008. <http://www.hofstra.edu/Academics/Colleges/HCLAS/BIO/bio_animaldissection.html>.

⁶⁸ Ducceschi, L., Hart, L., and N.Green. “Guidelines for the development of student choice policies regarding dissection in colleges and universities: An ethnographic analysis of faculty and student concerns.” *Proceedings 6th World Congress on Alternatives & Animal Use in the Life Sciences AATEX Special Issue*. (2007): 273-276.

⁶⁹ Rauch, Annette and Gary Patroneck. “The Impetus Behind the Development of Alternatives.” *Alternatives in Veterinary Medical Education*. AVAR Newsletter. Winter 2008.

Some veterinary schools require students to perform terminal surgery labs on healthy animals. Others have adopted humane and effective alternatives.

filed a lawsuit against the School of Veterinary Medicine at the University of Pennsylvania after refusing to perform a required terminal surgery on healthy dogs.⁷⁰ These students, who were two of the first individuals to refuse to vivisect to obtain their veterinary degrees in the United States, prevailed and were able to complete their surgical training on dogs who were already scheduled for euthanasia for terminal medical conditions.⁷¹ In 2002, the University of Pennsylvania eliminated terminal surgeries in its small animal curriculum,⁷² following in the footsteps of Tufts University, which in the 2000-2001 academic school year became the first U.S. veterinary school to end small animal terminal labs.^{73,74} In 2003, Western University of Health Sciences College of Veterinary Medicine in Pomona, California was established with a no harm approach to practicing veterinary medicine, completely eliminating the harmful use of animals in their curriculum and instead using cadavers of companion animals who are donated for educational purposes.^{75,76}

Fortunately, many U.S. veterinary schools have adopted humane methods and are continuing to make change in

University of Georgia – College of Veterinary Medicine

In 2008, Animalearn worked with students and faculty at UGA to help them implement humane changes for animals used in the veterinary school. Several students there are opposed to the terminal dog labs and instead want to see humane alternatives such as cadavers in place. Also many students and faculty are behind the initiative to create a Shelter Medicine Program. In April 2008, UGA received a Maddie's Fund grant for an externship, which gives students the opportunity to work alongside a full-time shelter veterinarian. In January 2009, several student groups at UGA sponsored a first ever College of Veterinary Medicine "Shelter Medicine Symposium" to generate more discussion about this topic. Students and faculty were strategic in helping to create a three-tiered campaign to decrease and ultimately eliminate the use of dogs in terminal surgery labs. This campaign includes, (1) creating a shelter medicine spay/neuter fourth-year senior surgical rotation; (2) implementing alternative surgical training vehicles that would aid student education and decrease the need for terminal surgical procedures as learning tools, i.e. cadavers; and (3) developing an educational memorial program (EMP).

Animalearn helped UGA students to identify ways to create these changes. For example, we supported their efforts by loaning them veterinary alternatives from The Science Bank and by giving them guidance regarding how to encourage the faculty to implement these viable teaching tools (See Appendix B). Animalearn also assisted in bringing to fruition two of the humane initiatives proposed by students and faculty there by providing grants for the Shelter Medicine program, which will become part of UGA's College of Veterinary Medicine's Fall 2009 curriculum, and the development of a digital DVD surgery tutorial to use as a teaching tool to help enhance the second-and third-year surgery curriculum.

The goal with the Shelter Medicine Spay/Neuter fourth-year senior rotation course at UGA is to increase the number of opportunities a student can have to perform small animal surgery on

⁷⁰ Pothier, Dick. "2 Penn Students Sue Over Animal Surgery." *Philadelphia Inquirer* 17 Mar 1987.

⁷¹ Hall, Lee. Interview with Dr. Gloria Binkowski and Dr. Eric Dunayer. "Vets who make a difference in the lives of domestic cats and dogs" *Friends of Animals Actionline Newsletter*. Spring 2004. Friends of Animals. 2 Sep 2008. <<http://www.friendsofanimals.org/actionline/spring-2004/vets-difference.html>>.

⁷² American Anti-Vivisection Society News Release. "University of Pennsylvania School of Veterinary Medicine Lauded for Ending Terminal Animal Surgery Course." 7 Aug 2002.

⁷³ Tufts Cummings School of Veterinary Medicine. "Animal Use for DVM Training in Surgery." Undated. Tufts University. 20 Oct 2008. <<http://www.tufts.edu/vet/academic/dvmtraining.html>>.

⁷⁴ Even if a school doesn't have terminal labs for its mandatory small animal curriculum, its large animal curriculum and/or its electives may still rely on terminal labs. Also, the terminal labs might not be eliminated, just that students are provided the option of an alternative.

⁷⁵ Hymon, Steve. "'No Harm' Approach to Medicine." *Los Angeles Times* 7 Oct 2003. *Los Angeles Times* 19 Dec 2008. <<http://articles.latimes.com/2003/oct/07/local/me-vet7>>.

⁷⁶ Western University of Health Sciences College of Veterinary Medicine. Founding Principles. 5 Feb 2009. <<http://www.westernu.edu/xp/edu/veterinary/principles.xml>>.

“recovery” shelter animals. In addition to benefiting humane education, the Shelter Medicine rotation enhances student surgical education and provides a much needed community service.

The idea for the DVD digital surgery program came after a student there researched alternative learning tools, which would decrease the number of terminal surgical training procedures. In that search, the student came across a series of DVD/digital media surgery tutorials for veterinary students developed by Michigan State CVM and UC Davis CVM. The student then met with several surgery professors at UGA about implementing similar videos into the surgery curriculum. Faculty were very interested, but indicated that UGA taught some of the procedures (feline/canine spay, neuter, laparotomy, splenectomy, cystotomy, etc.) with slightly different techniques than Michigan and UC Davis. Thus, the UGA CVM digital surgery tutorial for the sophomore and junior curriculum was born.

The response from UGA faculty and administration has been positive. K. Paige Carmichael, DVM, PhD., Associate Dean of Academic Affairs, reported that the digital DVD surgery tutorial will give students “the opportunity to pause, watch the procedure again and again will help our students become more confident and proficient in their skills.”³ MaryAnn Radlinsky, DVM, MS, Associate Professor in the Department of Small Animal Medicine and Surgery at UGA’s College of Veterinary Medicine, echoed Dr. Carmichael’s sentiments about the DVD project by adding that “the junior surgery experience for our students at the University of Georgia would be greatly enhanced by adding videos to the armamentarium of teaching tools available.”⁴

Due to the efforts of UGA students, terminal dog labs were eliminated and replaced with canine cadavers in the UGA CVM junior or third-year surgery course in Fall 2008. While the junior surgery course still offers a terminal procedure (exploratory surgery) that is performed on young pigs who would be slated for slaughter, students who do not want to perform the terminal pig lab can utilize a canine cadaver (not ethically sourced). However, communications with UGA students indicate that the junior surgeries scheduled for fall 2009 may all be beneficial recovery procedures (spays/neuters), after informal discussion with faculty.

Fortunately, UGA is working to establish an Educational Memorial Program (EMP) for ethically sourced companion animal cadavers at the veterinary medical school. Late in 2008, UGA received a grant from the Humane Society Veterinary Medical Association (HSVMA) to help purchase new freezers specifically for this purpose.

UGA is not completely free of harmful dog and cat use in education; however, the school is an example of how significant change can be made by one or more students to help animals.

this arena (See Appendix B.1. for information on alternatives). More than half of the 28 U.S. veterinary schools no longer require terminal surgeries in core courses, and many do not require them in elective courses.⁷⁷ For a list of veterinary medical schools that offer alternatives, go to http://www.animalearn.org/studentcenter_vetmed05.php.

4. Medical Education

Throughout history, U.S. medical schools have typically used dog labs (lethal scholastic exercises performed by students) to teach basic physiology and pharmacology. In 1992, University of Colorado (CU) medical student Safia Rubaii filed a lawsuit against the school of medicine for not permitting her to use humane alternatives to the school’s terminal dog labs, after refusing to participate in some of these harmful labs due to her religious beliefs

⁷⁷ Patronek, Gary J. PhD., and Annette Rauch, DVM. “Systematic review of comparative studies examining alternatives to the harmful use of animals in biomedical education.” *JAVMA. Vet Med Today: Reference Point* Vol. 230:1. 1 Jan 2007. 37-43.

of doing no harm to animals.⁷⁸ Although the judge ruled against Ms. Rubaii in 1993,⁷⁹ she did appeal the case and won.⁸⁰ Ms. Rubaii ultimately left CU, but in the appeal CU was ordered to pay her a substantial amount of money.⁸¹ Fortunately in 2003, CU ended its terminal surgery labs on dogs.⁸²

Most of the nation's leading medical schools have developed alternatives to lethal dog labs.

Today the trend in medical education is moving away from using 'dog labs' for demonstration purposes (See Appendix B.1.).⁸³ In fact, most of the nation's leading medical schools have developed alternative methods for teaching these disciplines.⁸⁴ New York Medical College has been one of the last schools to end dog labs. According to Dr. Francis Belloni, the Dean of New York Medical College, his students now use echocardiograms to study heart function. The subjects used for this study are medical students, not live dogs. Dr. Belloni noted that students would "become just as good doctors without it [dog labs]."⁸⁵ Nine U.S. medical schools continue to use live animal labs for medical education.⁸⁶

Conclusion

Upper-level high school biology classes, undergraduate courses, and human and veterinary medical training courses still commonly offer cat dissection, and occasionally utilize dogs as well.⁸⁷ Dogs are rarely dissected in high schools yet are often dissected in veterinary anatomy courses.⁸⁸ However, both dogs and cats are also used in veterinary and human medical training.⁸⁹

Fortunately, more than 90% of U.S. medical schools have eliminated the use of live animals to teach human physiology and pharmacology, as well as surgical techniques.⁹⁰ Also, states and colleges are increasingly adopting student choice policies that allow students to choose humane alternatives to dissection and vivisection.

No matter what education level – high school, undergraduate, graduate, veterinary, or medical – recent history has proven that students can make a difference for dogs and cats and other animals used in education by encouraging their institutions to implement student choice policies and/or eliminate inhumane procedures altogether. (See Sec. IV for an overview of how to help eliminate the harmful use of animals in education. See Appendix B.3. and 4. for a guide to implementing student choice policies, and Appendix B.1. for a comprehensive description of the latest alternatives available for undergraduate and graduate education.)

⁷⁸ Newcomer, Kris. "Religion Keeps Student From Experiments on Dogs A Doctor Cures." *Rocky Mountain News* 24 Apr 1992.

⁷⁹ Mehle, Michael. "Judge Rules Against CU Med Student in Lawsuit Class Experiment on Dog Didn't Infringe on Rights of Buddhist, Court Says." *Rocky Mountain News* 14 May 1993.

⁸⁰ News Staff. "Med Student Wins on Appeal." *Rocky Mountain News* 15 Jul 1994.

⁸¹ Balcombe, Jonathan. *The Use of Animals in Higher Education*. Washington D.C.: Humane Society Press. 2000.

⁸² Kieswer, Kristine. Good Medicine. Physicians Committee for Responsible Medicine. "University of Colorado Drops Dog Labs from Medical Training." Summer 2003. Volume XII, Number 3. PCRM 2 Sep 2008. <<http://www.pcrm.org/magazine/gm03summer/gm03summer03.html>>.

⁸³ Wadman, Meredith. "Medical Schools Swap Pigs for Plastic." *Nature* 7 May 2008. 453. 140-141.

⁸⁴ Harrison, Nancy. Doctors Against Doglabs. Undated. Doctors Against Doglabs. 9 Jun 2008. <<http://www.doctorsagainstdoglabs.com/>>.

⁸⁵ Bakalar, Nicholas. "Killing Dogs in the training of Doctors is to End." *The New York Times* 1 Jan 2008. *New York Times* 2 Sep 2008. <<http://www.nytimes.com/2008/01/01/health/research/01dog.html?ex=1356843600&en=65a79634ecc41464&ei=5088&partner=rssnyt&emc=rss>>.

⁸⁶ Physicians Committee for Responsible Medicine. "Medical School Curricula with Live Animal Laboratories." 16 Mar. 2009. <http://www.pcrm.org/resch/meded/ethics_medlab_list.html>.

⁸⁷ Orlans, F. Barbara, et al. "Dissection of Frogs: The Jenifer Graham Case." *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 209-221.

⁸⁸ Decades ago, live dogs were used to demonstrate the toxicity of substances in veterinary pharmacology courses. However, that practice has ceased.

⁸⁹ Kittens are used to teach human pediatric intubation techniques to medical students and personnel.

⁹⁰ Physicians Committee for Responsible Medicine. "Medical Schools with Live Animal Laboratories." Fact Sheet. 30 Jun 2008. PCRM. 18 Aug 2008. <http://www.pcrm.org/resch/PDFs/WITH_labs_063008.pdf>.

SECTION III: Sources of Dogs and Cats Used in Higher Education

Colleges and universities obtain the dogs and cats that they use in education and training—both live and dead—from various sources (See Appendix A). In certain states, schools looking for cheap sources of animals purchase or otherwise acquire dogs and cats directly from animal pounds and shelters through a process known as pound seizure. Alternatively, pounds and shelters might sell dogs and cats to dealers or who then sell the animals to schools, or other dealers. Biological supply companies also may breed their own animals to sell. The USDA classifies dealers as either Class B (which includes biological supply companies) or Class A, depending on how the animals are acquired.

Universities acquire dogs and cats from:
Pounds/shelters (pound seizure)
Class B random source dealers
Biological supply companies
Class A dealers

Our investigation turned up disturbing findings about the “sources” where colleges and universities in our sample are obtaining dogs and cats used for teaching purposes. Animalearn examined the problems with obtaining animals from pounds and dealers and the laws in place governing pound seizure and animal dealers. As our investigation shows, many animal dealers consistently violate federal animal welfare laws. This includes providing or obtaining dogs and cats through questionable means and treating animals inhumanely, yet they continue to reap huge profits.

Alternatives, on the other hand, provide technologically sophisticated ethical, and economical solution to this problem (See Appendix B). In addition, laws or policies prohibiting pound seizure and Class B animal dealers that obtain animals through random sources (See Appendix A) would help safeguard companion animals from being exploited in the name of higher education.⁹¹

A. Pound Seizure

Pound seizure is the acquisition of animals from pounds and shelters for use in laboratory experiments and teaching projects.

Pound seizure is the acquisition of animals from pounds and shelters for use in laboratory experiments and teaching projects. Based on our investigation, we identified several colleges and universities that have, over a three-year period, collectively obtained thousands of dogs and cats for teaching purposes directly from pounds and shelters. Taking pets from shelters for these purposes, however, raises numerous problems, both ethical and technical. Several states

have historically mandated that shelters relinquish animals to research facilities, but many are now recognizing the problems with pound seizure and are increasingly banning the procedure.

1. Universities Acquiring Animals from Pounds and Shelters

According to the results of our investigation, several universities are acquiring cats and dogs from pounds and shelters for use in education.⁹² Based on our survey, one of the most troubling examples of schools acquiring cats and dogs directly from shelters is Texas A&M University.⁹³ Between January 2005 and July 2008, Texas A&M acquired 474 live dogs from local animal shelters, primarily Lehman Animal Shelter in Giddings, Texas.⁹⁴ Records indicate that the dogs were euthanized at the university on the same day they were acquired from the shelter.⁹⁵ Between January 2006 and March 2008, Texas A&M acquired 86 dead cats from Lehman Animal Shelter.⁹⁶

⁹¹ USDA defines “random sources” as “dogs and cats obtained from animal pounds or shelters, auction sales, or from any person who did not breed and raise them on his or her premises.” See 9 C.F.R § 1.1.

⁹² This section describes universities’ direct acquisition of cats and dogs from pounds and shelters. More information about animal dealers’ sale of animals, including those obtained from pounds and shelters, can be found in the Class B Dealer section below.

⁹³ Pound seizure is not addressed in Texas state law.

⁹⁴ Four hundred and sixteen dogs were acquired from Lehman Animal Shelter in Giddings, TX.; 28 dogs were from Fayette County Animal Shelter in La Grange, TX; 25 dogs were from Bastrop County Animal Control and Shelter in Bastrop, TX; and 5 from Brenham Pound in Brenham, TX.

⁹⁵ Records of disposition (i.e., fate) of the dogs were not received for 2005.

⁹⁶ According to records received from Texas A&M, the cats were euthanized prior to being picked up by university personnel.

Other schools⁹⁷ obtaining cats and dogs directly from pounds and shelters include: Colorado State University,⁹⁸ University of Georgia,⁹⁹ Michigan State University,¹⁰⁰ Iowa State University,¹⁰¹ and University of Minnesota.¹⁰²

2. Problems with Pound Seizure¹⁰³

Pound seizure should not be considered a solution to the cat and dog overpopulation problem. The release of companion animals from shelters and pounds to research and teaching labs erodes the very core of a shelter's purpose, which is to provide a safe haven for lost, abandoned, or unwanted animals.¹⁰⁴ A shelter/pound that releases animals directly to research facilities will lose the public's trust.^{105,106} This could decrease the number of animals brought to the shelter/pound, and increase the number of abandoned animals. The National Animal Control Association has a policy against pound seizure laws mandating the sale or release of animals to research institutions for these very reasons.¹⁰⁷ Pound seizure is especially concerning during the current foreclosure crisis and economic downturn, as more families find themselves forced to relinquish their pets to shelters. It is estimated that between 500,000 and 1,000,000 additional pets are going to be relinquished to pounds and shelters or abandoned solely due to the foreclosure crisis.¹⁰⁸

Pound seizure runs contrary to a shelter's purpose, which is to provide a safe haven for lost, abandoned, or unwanted animals and promote adoptions.

In addition, cats and dogs from pounds and shelters who are sold to dealers or university laboratories are likely to be animals who would be considered "adoptable" (i.e., healthy, non-aggressive); otherwise, they would not be desirable as experimental subjects.^{109,110} Placing a dollar value on a live or dead animal for a "sure-sell" to a dealer can, under certain circumstances, corrupt the shelter system, bypassing its important role in promoting animal adoptions.

Furthermore, animals who were once pets are particularly ill-suited for the laboratory. Cats and dogs in need of temporary shelter, whether they are "strays" or relinquished, likely lived a varied life that was not as restricted as

⁹⁷ University of California-Davis ended pound seizure in 2006.

⁹⁸ Between 2005-2007, Colorado State University received 210 dog cadavers from the Larimer County Humane Society in Fort Collins, Colorado. It is unclear if the bodies were purchased or donated. Colorado state law (C.R.S. 35-42.5-101 (2002)) allows pound seizure, with restrictions.

⁹⁹ In 2006, Stephens County Animal Control (SCAC) donated 26 live dogs to the University of Georgia. In 2007, SCAC donated 65 live dogs, and as of July 2008, SCAC had donated 33 live dogs to the University of Georgia. In 2007, University of Georgia, Athens received 31 dog cadavers and three cat cadavers as donations from Athens Clarke County Animal Control. In 2007, 23 dog and nine cat cadavers were donated from Madison Oglethorpe Animal Shelter. All live dogs were subsequently euthanized at the university. The euthanized dogs and the donated cadavers were used in a small animal medicine and surgery course.

¹⁰⁰ In 2005, Michigan State University (MSU) purchased three live dogs and two live cats from Jackson County Animal Control (Jackson, MI) for use in education. In 2007, MSU purchased six live dogs from Eaton County Animal Shelter (Charlotte, MI). Michigan state law (MCL § 287.388 & § 287.389 (2003)) allows pound seizure.

¹⁰¹ In 2005, Iowa State University bought six live dogs and two live cats from the Des Moines Animal Shelter for use in education. Between 2005 and 2006, two local animal pounds donated live cats and dogs to Iowa State: the Perry City Dog Pound (Perry, IA) and the Jefferson City Dog Pound (Jefferson, IA). Perry City donated 46 live cats and kittens and 22 dogs. Almost all of the cats and kittens were euthanized. Jefferson City donated 31 live dogs and 18 live cats, and most of the cats were euthanized. Iowa state law (Iowa Code § 162.2 & 162.20 (2008)) allows pound seizure.

¹⁰² In 2005, University of Minnesota used 798 live dogs and 424 live cats who were obtained from animals shelters, students, or clients and returned. Similarly, in 2006, the University used 748 dogs and 480 cats, and in 2007, it used 572 dogs and 361 cats. The University did not specify how the animals were used, from which shelters they were acquired, or if they were used specifically in education. Minnesota state law (Minn. Stat. § 35.71 (2002)) requires pound seizure. It is unclear whether all of these animals were returned to the shelter.

¹⁰³ Also see: <<http://www.banpoundseizure.org>>.

¹⁰⁴ One example of a legal definition of "animal shelter" can be found in the Illinois state code in which it is defined as: "a facility operated, owned, or maintained by a duly incorporated humane society, animal welfare society, or other non-profit organization for the purpose of providing for and promoting the welfare, protection, and humane treatment of animals." (510 ILCS 70 & 2.01h).

¹⁰⁵ Kullberg, John, President, American Society for the Prevention of Cruelty to Animals. Letter. The New York Times 21 Mar 1987. New York Times 20 Jan 2009. <<http://query.nytimes.com/gst/fullpage.html?res=9B0DEFDD1638F932A15750COA961948260>>.

¹⁰⁶ Rowan, Andrew N. Of Mice, Models, & Men: A Critical Evaluation of Animal Research. Albany, NY: State University of New York Press, 1984.

¹⁰⁷ National Animal Control Association. Policy Statement: Dispositions of Animals – Pound Seizure. 17 Sep 2002. NACA. 29 Jan 2009. <<http://www.nacanet.org/poiseizure.html>>.

¹⁰⁸ ASPCA. "ASPCA Estimates Up to 1 Million Pets at Risk During Economic Crisis." Press Release. 2009 February 5. <http://www.asPCA.org/pressroom/press-releases/020509.html>.

¹⁰⁹ Edwards, Cecile. "The Pound Seizure Controversy: A Suggested Compromise in the Use of Impounded Animals for Research and Education." Journal of Land, Natural Resources, and Environmental Law 11(1990):241-263.

¹¹⁰ An example is the allegations against Sargeant's Wholesale Biological, who allegedly acquired dogs who were preferred for use in education from Tulare County Animal Control. See Biological Supply Companies *infra* pg. 25.

that in a laboratory setting.¹¹¹ Suddenly being placed in confined, socially-isolated, and in unfamiliar conditions can be psychologically traumatizing.¹¹² These cats and dogs also have unknown medical histories and potential exposure to diseases, which can confound results of certain experiments or infect other animals.^{113,114} In addition, because the background of these animals is not known, in some situations even seemingly non-aggressive animals may prove to be unpredictable, posing a danger to people working with them.¹¹⁵

Another concern is that because it is considered inexpensive to purchase or otherwise obtain animals from shelters and pounds,^{116,117} animals are likely to be used more expendably and in greater numbers. However, implementing the use of alternatives, such as high-tech animal models and Educational Memorial Programs (EMPs), through which clients can donate deceased cats or dogs for use in education, can also reduce costs (See Appendix B.2. for information on creating an EMP). Furthermore, if animals are not cheaply available to colleges and universities, there may be an incentive for these schools to re-evaluate their animal use protocols and consider humane teaching methods that are being used successfully by other schools.

The American Medical Student Association (AMSA) is specifically opposed to the use of cats and dogs obtained through pound seizure or random source animal dealers, and it encourages the use of non-animal alternatives in teaching.¹¹⁸

3. History of Pound Seizure

Pound seizure has been a controversial issue in the animal advocacy and research communities since the late 1800s. After World War II, with the availability of increased funding, animal studies became a fundamental part of research, and there was increased demand for animals for use in laboratory research, testing, and teaching, but sources that could provide these animals were uncertain.^{119,120} Scientists turned first to pounds and shelters, which were places full of “surplus” animals who could be acquired cheaply.¹²¹ The argument was made, and continues to be made today, that these animals are unwanted and are going to be euthanized anyway.¹²²

Beginning in the 1940s, laws were passed that required pounds and shelters to release dogs and cats to research laboratories. The National Society for Medical Research, which eventually evolved into the National Association for Biomedical Research (NABR), lobbied for the majority of laws between 1945 and 1960 encouraging the acquisition of dogs and cats from pounds by laboratories.^{123,124}

¹¹¹ Orlans, F. Barbara, et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹¹² Prescott, Mark J., et al. “Refining dog husbandry and care: Eighth report of the BVA/WF/FRAME/RSPCA/UFWS Joint Working Group on Refinement.” 38(2004) SUP1: s1.1-s194.

¹¹³ Scropio, Diana G., et al. “Retrospective Clinical and Molecular Analysis of Conditioned Laboratory Dogs (*Canis familiaris*) with Serologic Reactions to *Ehrlichia canis*, *Borrelia burgdorferi*, and *Rickettsia rickettsii*.” *Journal of the American Association for Laboratory Animal Science* 47(Sep 2008):23-28.

¹¹⁴ Rowan, Andrew N. *Of Mice, Models, & Men: A Critical Evaluation of Animal Research*. Albany, NY: State University of New York Press, 1984.

¹¹⁵ Prescott, Mark J., et al. “Refining dog husbandry and care: Eighth report of the BVA/WF/FRAME/RSPCA/UFWS Joint Working Group on Refinement.” 38(2004) SUP1: s1.1-s194.

¹¹⁶ *Id.*

¹¹⁷ Scropio, Diana G., et al. “Retrospective Clinical and Molecular Analysis of Conditioned Laboratory Dogs (*Canis familiaris*) with Serologic Reactions to *Ehrlichia canis*, *Borrelia burgdorferi*, and *Rickettsia rickettsii*.” *Journal of the American Association for Laboratory Animal Science* 47(Sep 2008):23-28.

¹¹⁸ American Medical Student Association. “Principles Regarding Vivisection in Medical Education.” AMSA Website. Undated. AMSA. 25 Jan 2009. <<http://www.amsa.org/about/ppp/vivi.cfm>>. See Appendix B, Section 3.

¹¹⁹ Orlans, F. Barbara, et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹²⁰ Edwards, Cecile. “The Pound Seizure Controversy: A Suggested Compromise in the Use of Impounded Animals for Research and Education.” *Journal of Land, Natural Resources, and Environmental Law* 11(1990):241-263.

¹²¹ Orlans, F. Barbara, et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹²² Michigan Society for Medical Research. “The Use of Pound Animals in Biomedical Research.” Factsheet. Undated. mismr.org. 29 Sep 2008. <<http://www.mismr.org/educational/pound.html>>.

¹²³ Orlans, F. Barbara, et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹²⁴ Parascandola, John. “Physiology, Propaganda and Pound Animals: Medical Research and Animal Welfare in Mid-Twentieth Century America.” *Journal of the History of Medicine and Allied Sciences*. 62(2007): 277-315.

Minnesota (1949),^{125,126} Wisconsin (1949),¹²⁷ and New York (1952)¹²⁸ were among the first states that passed laws requiring the release of animals in shelters or pounds for use in research.¹²⁹ By the early 1970s, 10 states had laws requiring publicly-funded shelters to release animals to research facilities.¹³⁰

4. Current Status of Pound Seizure Laws

Though laws mandating pound seizure were enacted over a half-century ago, some of them still exist today.

AAVS' History Working to End Pound Seizure

AAVS has had a long history of working to end pound seizure. In 1911, for example, AAVS led efforts to stop the traffic of stolen animals who were sold to medical laboratories, which eventually formed the framework for the prohibition of pound seizure in Pennsylvania. An AAVS representative spoke on behalf of such legislation, proclaiming that no impounded animals shall be sold for animal experimentation. Two years later, Pennsylvania bill No. 436 was introduced to institute pound seizure, and, outraged, AAVS Founder Caroline Earle White wrote to the legislature on behalf of the organization, voicing opposition to the bill, which was later defeated.

AAVS continued advocating for animals in shelters through the years, especially during the 1940s when issues regarding pound seizure were heightened. However, with so much legislative activity throughout the country to pass such bills, AAVS had to fight harder each time new legislation was introduced. For example, in 1945, after the introduction of yet another pound seizure bill, No. 1022, AAVS called on Mr. Owen Hunt, a Philadelphia area legislative advisor, who five years later became AAVS President, to lead our successful opposition of this proposed law. As the years progressed, Mr. Hunt, with the cooperation of our members, worked diligently to stop the passage of several pound seizure laws not only in Pennsylvania but also in other states, including Connecticut, Illinois, and New York. To this day, pound seizure is prohibited in these states as well as Pennsylvania.

Pound seizure is prohibited in 14 states.

Others have been repealed or amended as a result of the continued efforts of the animal protection community. For example, in 1979, following a strong campaign by animal advocates, New York repealed the Metcalf-Hatch Act of 1952,¹³¹ which had required public and private shelters that received municipal funds to surrender unclaimed animals upon request to state research facilities.^{132,133} In 1980, Connecticut repealed its pound seizure mandate, and prohibited pound seizure entirely.¹³⁴ In 1983, Massachusetts became the first state to ban pound seizure and prohibit the import of animals from pounds or shelters in other states.¹³⁵ Fourteen states (Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland,

¹²⁵ Minnesota Stat. § 35.71.

¹²⁶ Edwards, Cecile. "The Pound Seizure Controversy: A Suggested Compromise in the Use of Impounded Animals for Research and Education." *Journal of Land, Natural Resources, and Environmental Law* 11(1990):241-263.

¹²⁷ Parascandola, John. "Physiology, Propaganda and Pound Animals: Medical Research and Animal Welfare in Mid-Twentieth Century America." *Journal of the History of Medicine and Allied Sciences* 62(2007): 277-315.

¹²⁸ Rowan, Andrew N. *Of Mice, Models, & Men: A Critical Evaluation of Animal Research*. Albany, NY: State University of New York Press, 1984.

¹²⁹ Wisconsin's law applied to both public and private animal shelters, even if they did not receive public funds. Wisconsin state law now allows, but does not require, pound seizure. (Wis. Stat. § 74.13 (2002)).

¹³⁰ Edwards, Cecile. "The Pound Seizure Controversy: A Suggested Compromise in the Use of Impounded Animals for Research and Education." *Journal of Land, Natural Resources, and Environmental Law* 11(1990):241-263.

¹³¹ New York Public Health Law § 505.

¹³² Edwards, Cecile. "The Pound Seizure Controversy: A Suggested Compromise in the Use of Impounded Animals for Research and Education." *Journal of Land, Natural Resources, and Environmental Law* 11(1990):241-263.

¹³³ Pound seizure was prohibited in New York in 1987. (NY CLS Agr & M § 374.2-e (2002) and NY CLS Agr & M § 374.5b (2002)).

¹³⁴ Rowan, Andrew N. *Of Mice, Models, & Men: A Critical Evaluation of Animal Research*. Albany, NY: State University of New York Press, 1984.

¹³⁵ Anonymous. "Massachusetts Outlawing Laboratory Use of Pets." *The New York Times* 27 Dec 1983. *New York Times* 29 Jan 2009. <<http://query.nytimes.com/gst/fullpage.html?sec=health&res=9902E7D81538F934A15751C1A965948260>>.

Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia) and the District of Columbia now have laws prohibiting shelters from providing animals for research.¹³⁶

Pound seizure is still mandated in 3 states: Minnesota, Oklahoma, and Utah. Several other states allow it.

However, three states (i.e., Minnesota, Oklahoma,¹³⁷ and Utah) still have state laws requiring pounds and shelters to turn over animals to research facilities, though Oklahoma permits exceptions to local ordinances. Some other states have laws allowing researchers access to animals from publicly funded shelters only under certain conditions. Other states have no law at all, leaving the matter to local discretion. As is evident from our study, some colleges and universities continue to take advantage of the availability of pound seizure to procure dogs and cats for use in teaching.

Conclusion

We found that several colleges and universities have acquired thousands of dogs and cats directly from shelters and pounds for training and teaching purposes. Many of the animals obtained from pounds and shelters had already been euthanized or were euthanized upon arrival at the universities.

Pound seizure is an outdated practice that raises significant ethical concerns. It can jeopardize modern animal shelter systems that are intended to harbor companion animals and promote their adoption into loving homes. Cats and dogs acquired through pound seizure likely once were pets, and their transfer to animal dealers (described in Section III) and laboratories represents a violation of trust and compounds the stress to the animals involved. Additionally, animals obtained from pounds and shelters are desirable to schools because they can be acquired cheaply or for free, yet they may harbor unknown health problems that can negate results of experiments or infect other animals on site.

However, the use of these animals can be replaced with humane alternatives, such as the use of client-donated cat and dog cadavers. In addition, shelter medicine programs have been developed that provide a service to local shelters while allowing students to learn important skills (See Appendix B.1.g. for information on shelter medicine programs). Use of these alternatives does not shake the trust that people expect to have in animal shelters but rather allows people to feel comfortable that, if they do have to bring a pet to a shelter, their pet will not end up in a laboratory and used in experiments.

B. Animal Dealers

Types of dealers:

Class A dealer: purpose-breeds animals

Class B dealer: purchases animals from other sources (inc. pounds) and resells

Random source dealer

Biological supply company

Any person who breeds, purchases, or otherwise acquires animals to sell for use in research, testing, or education is classified as a dealer under the AWA.¹³⁸ The AWA requires that dealers be licensed by the USDA as either Class A or Class B dealers. A USDA-licensed Class B dealer is defined as a person “whose business includes the purchase and/or resale of any animal.”¹³⁹ Class B dealers may also breed animals.¹⁴⁰ There are two types of Class B dealers that supply animals to education: those who obtain animals from random sources (Class B random source dealers) (See Appendix A. Tables 1. and 2.), and biological supply companies (See Appendix A. Table 3.). A USDA-licensed Class A dealer, on the other hand, breeds animals for sale to research and teaching facilities.¹⁴¹

¹³⁶ See excerpts of laws at: <<http://banpoundseizure.org/yourstate.shtml>>.

¹³⁷ Oklahoma legislation, HB 1886, introduced in 2009, would specifically allow USDA-licensed Class B dealers to obtain animals from shelters.

¹³⁸ USDA defines “dealer” as “any person who, in commerce, for compensation or profit, delivers for transportation, or transports, except as a carrier, buys, or sells, or negotiates the purchase or sale of: Any dog or other animal whether alive or dead (including unborn animals, organs, limbs, blood, serum, or other parts) for research, teaching, testing, experimentation, exhibition, or for use as a pet...” 9 C.F.R. § 1.1.

¹³⁹ USDA defines “Class B licensee” as “brokers, and operators of an auction sale, as such individuals negotiate or arrange for the purchase, sale, or transport of animals in commerce. Such individuals do not usually take actual physical possession or control of the animals, and do not usually hold animals in any facilities. A class ‘B’ licensee may also exhibit animals as a minor part of the business.” *Id.*

¹⁴⁰ United States Department of Agriculture. Animal and Plant Health Inspection Service. Animal Care. “Licensing Requirements (Section 3.3)” *Animal Care Resource Guide: Dealer Inspection Guide* Apr 2000. APHIS. 15 Sep. 2008. <http://www.aphis.usda.gov/animal_welfare/downloads/manuals/dealer/requirements.pdf>.

¹⁴¹ USDA defines “Class A licensee” as a person “whose business involving animals consists only of animals that are bred and raised on the premises in a closed

In 1965, New York Congressman Joseph Y. Resnick introduced a federal bill in response to the story of Pepper, a Dalmatian who was stolen, sold to a research facility, and killed.¹⁴² This incident and the Resnick bill, along with a 1966 Life Magazine exposé entitled “Concentration Camps for Dogs,” influenced the creation of the 1966 Laboratory Animal Welfare Act, now known as the AWA.¹⁴³ This was the first piece of federal legislation in the U.S. that established humane standards for the care, transport, and acquisition of animals used in research facilities (including the use of animals for teaching purposes at colleges and universities), and it also required the regulation of dealers who sold animals to such facilities.¹⁴⁴

In 1990, the AWA was amended to define a five-day minimum holding period for animals in shelters or pounds who are to be sold to animal dealers.¹⁴⁵ It specifies that this time will allow them to be claimed or give them an opportunity to be adopted. The amendment also established record keeping requirements for dealers who obtain companion animals from these sources¹⁴⁶ to help ensure that animals are obtained legitimately. The AWA also requires that the Animal and Plant Health Inspection Service (APHIS) of the USDA, the federal agency that enforces the AWA, inspect facilities operated by these dealers.¹⁴⁷

USDA advises citizens who have lost a dog to contact local animal dealers and research facilities.

Though the biomedical community denies that cats and dogs are still being stolen for sale to research and teaching institutions,^{148,149} Class B dealers continue to be fined by the USDA for violating the AWA by obtaining animals through deception.^{150,151} Recognizing that lost or stolen companion animals are possibly being sold to research labs, USDA even advises citizens who have lost a dog to contact local animal dealers and research facilities.¹⁵²

Animalearn’s investigation revealed that many animal dealers repeatedly commit additional serious violations of the AWA yet continue to sell large numbers of cats and dogs and profit from their inhumane actions. In this section, we describe in detail violations and unethical practices committed by Class B random source dealers, as well as several of the biological supply companies and Class A dealers, and list the universities that support these businesses.

Schools can benefit both animals and themselves by adopting effective alternatives to the use of animals in teaching, which are not only more humane but are less expensive than buying animals for the classroom.¹⁵³

1. Class B Dealers – Random Source

Class B dealers may only obtain random source dogs and cats from other licensed dealers or pounds and shelters.¹⁵⁴ There

or stable colony and those animals acquired for the sole purpose of maintaining or enhancing the breeding colony.” *Id.*

¹⁴² Orlans, F. Barbara, et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹⁴³ *Id.*

¹⁴⁴ Laboratory Animal Welfare Act. Pub. L. 89-544. 24 August 1966. 29 Sep 2008. <<http://www.nal.usda.gov/awic/legislat/pl89544.htm>>.

¹⁴⁵ Food, Agriculture, Conservation, and Trade Act of 1990. Pub. L. 101-624, Section 2503. 28 Nov 1990. NAL. 18 Aug 2008. <<http://www.nal.usda.gov/awic/legislat/pl101624.htm>>; 7 U.S.C. § 2158 (a).

¹⁴⁶ *Id.* § 2058 (b).

¹⁴⁷ United States Department of Agriculture. Animal and Plant Health Inspection Service. “Animal Welfare: Final Rules (9CFR Parts 1 and 2).” *Federal Register*, 31 Aug 1989: 36112-36163. NAL. 18 Aug 2008. <<http://www.nal.usda.gov/awic/legislat/awafin.htm>>.

¹⁴⁸ Michigan Society for Medical Research. “The Use of Pound Animals in Biomedical Research.” Factsheet. Undated. *mismr.org*. 29 Sep 2008. <<http://www.mismr.org/educational/pound.html>>.

¹⁴⁹ Reitman, Judith. “From the Leash to the Laboratory.” *The Atlantic Monthly* 286(Jul 2000):17-21. *The Atlantic Monthly* 15 Sep 2008. <<http://www.theatlantic.com/issues/2000/07/reitman.htm>>.

¹⁵⁰ *Id.*

¹⁵¹ See, e.g., United States Department of Agriculture. “Iowa Animal Dealer Faces USDA Animal Welfare Charges.” Press Release. 3 Jan 2001. APHIS. 18 Aug 2008. <<http://www.aphis.usda.gov/lpa/news/2001/01/SHONKA.HTM>>.

¹⁵² United States Department of Agriculture. Animal and Plant Health Inspection Service. Animal Care. “Safeguarding Pets.” Fact Sheet. Sep 1997. APHIS. 18 Aug 2008. <http://www.aphis.usda.gov/publications/animal_welfare/content/printable_version/fs_awsafepet.pdf>.

¹⁵³ “Cost Comparison Sheet.” Animalearn. <<http://animalearn.org/resources01.php>>.

¹⁵⁴ 9 C.F.R. § 1.1. (defining random source as “dogs and cats obtained from animal pounds or shelters, auction sales, or from any person who did not breed and raise them on his or her premises”) 9 C.F.R § 2.132 (a).

are currently ten USDA licensed Class B random source dealers¹⁵⁵ (See Appendix A. Tables 1. and 2.).

A Class B random source dealer may not sell or donate a random source dog or cat without providing the recipient the proper documentation,¹⁵⁶ which must be available for each animal to assure legal acquisition, including an assurance that the pound or person was notified that the dog or cat may be used in research or education.¹⁵⁷ At each inspection, four times per year, two trace-backs (i.e., following identification/acquisition records back to the animals' original sources) are performed. USDA APHIS has been performing these trace-backs since 1993.¹⁵⁸

USDA regulations also stipulate holding periods for random source animals to allow owners time to find their lost or stolen animals. Class B dealers are required to hold an animal obtained from a pound or shelter for 10 full days, not including the day of acquisition, before selling the animal.¹⁵⁹

Class B random source dealers have been repeatedly cited for serious AWA violations.

Class B dealers may sell these animals to entities such as biological supply companies (which sell live and dead animals to classrooms and laboratories, and which are also classified as Class B dealers under the AWA definition); blood supply companies/facilities that collect blood from animal colonies for veterinary medical use; and research, testing, and teaching laboratories.

Animals sold by Class B dealers are significantly less expensive to buy than the “purpose bred” animals bred and sold by Class A dealers.^{160,161} However, according to the University of Michigan Medical School, “non-conditioned dogs [such as those obtained from random sources] often have an unknown health status; thus, no guarantees are provided for such animals.”^{162,163}

Animalearn discovered that a number of schools are obtaining dogs and cats from Class B random source dealers. These dealers have enjoyed significant profits from the sale of these animals yet are repeatedly cited by the USDA for violating AWA requirements. Given their history of frequent AWA violations, the USDA inspects each of these dealers on a quarterly basis. Several of the dealers are obtaining dogs and cats from questionable sources, are housing them in dirty and dangerous conditions, or are failing to provide them with humane care.

Details about the Class B random source dealers, their violations, and the schools that purchase from them are provided below.

• **Hodgins Kennels (Howell, Michigan)**

Hodgins Kennels, operated by Fred R. Hodgins, is a USDA licensed Class B dealer that sells live dogs and cats and frozen cat cadavers obtained from random sources.¹⁶⁴ Fred Hodgins has been selling animals to labs since 1960,

¹⁵⁵ See Appendix A.

¹⁵⁶ *Id.* § 2158 (b)(2).

¹⁵⁷ *Id.* Documents shall allow individuals to trace the animal's origin.

¹⁵⁸ United States. Department of Agriculture. Animal and Plant Health Inspection Service. Animal Care. “Animal Care Annual Report of Activities: Fiscal Year 2007.” Sep 2008. APHIS. 3 Dec 2008. <http://www.aphis.usda.gov/publications/animal_welfare/content/printable_version/2007_AC_Report.pdf>. This contrasts with the over 9,000 regulated facilities that are inspected at least once a year (for research facilities) or as determined by the USDA's risk-based system (all other facilities). See *Id.*

¹⁵⁹ 9 C.F.R. §2.101 2005. APHIS. 3 Dec 2008. <http://www.aphis.usda.gov/animal_welfare/downloads/awr/9cfr2.101.txt>.

¹⁶⁰ Michigan Society for Medical Research. “The Use of Pound Animals in Biomedical Research.” Factsheet. Undated. mismr.org. 29 Sep 2008. <<http://www.mismr.org/educational/pound.html>>.

¹⁶¹ Orlans, F. Barbara et al. “Where Should Research Scientists Get Their Dogs?” *The Human Use of Animals: Case Studies in Ethical Choice*. New York: Oxford University Press, 1998. 289-304.

¹⁶² Unit for Laboratory Animal Medicine, University of Michigan Medical School, Ann Arbor. “Canine Receiving, Quarantine, and Conditioning Protocol.” Undated. UMMS. 3 Sep 2008 <www.ulam.umich.edu/sops/Quarantine%20Dog%2008-05.pdf>.

¹⁶³ Also see similar concerns about the use of animals obtained through pound seizure. *Supra* pg. 14.

¹⁶⁴ Hodgins Kennels also operates as a boarding kennel/pet sitting service. See: yp.yahoo.com “Fred R. Hodgins Kennel.” 17 Nov 2008. <<http://yp.yahoo.com/>> Path: Other Professional Services > Animals and Pets > Pet Sitting Services.

Dying to Learn

and he also sells dogs to another class B dealer.^{165,166}

Cited for numerous AWA violations including failure to provide medical care, improper records, and unsafe housing.

Transported dogs more than 1,000 miles by truck.

Sold 1,882 live animals from 2005-2007, earning \$742,128.

Hodgins also runs Great Lakes Biological as a site under its Class B license for Hodgins Kennels. Great Lakes Biological sells only frozen cat cadavers to NASCO, a biological supply company based in Wisconsin.^{167,168}

The dogs sold by Hodgins are obtained through a network of several sources, including not just animal shelters but also other random source dealers such as Middle Fork Kennels (Salisbury, Missouri)¹⁶⁹ and R&R Research (Howard City, Michigan),¹⁷⁰ and dog bunchers (i.e. individuals who gather dogs and sell them collectively to random source dealers). Many of the dogs have been transferred several times between their original homes, shelters and/or dealers, and Hodgins.

The University of Michigan, Ann Arbor,¹⁷¹ University of Minnesota, St. Paul,^{172,173} and University of Florida, Gainesville have purchased live dogs from this dealer between 2004 and 2008. In order to deliver to the University of Florida the 92 dogs it purchased from November 2005 to January 2008 for use in veterinary medical training, the dogs had to travel by truck for over 1,000 miles from Michigan to Florida.¹⁷⁴ It is documented that dogs become extremely stressed during transport, which can lead to physiological changes and medical conditions that are detrimental to the animals' welfare and which can confound their use in experiments.^{175,176} In addition, many of the dogs were listed as being neutered, indicating that they likely were pets at one time. An invoice accompanying a shipment of conditioned¹⁷⁷ dogs from Hodgins to the University of Florida shows that 22 dogs were sold for \$320 each, plus \$1,500 for delivery by truck.¹⁷⁸

According to another invoice for 10 conditioned dogs sold for \$350 each to the University of Minnesota, St. Paul,¹⁷⁹ one dog was found to have a microchip, indicating that s/he was someone's pet, and the university was subsequently credited for \$350.¹⁸⁰

USDA APHIS officers inspected Hodgins Kennels eight times between November 1993 and November 1994 and cited it for numerous AWA violations related to failure to provide animals with medical care, recordkeeping, and unsanitary and unsafe animal housing, among others.^{181,182} In 1996, an administrative law judge fined Hodgins for

¹⁶⁵ Drayer, Mary Ellen, ed. The Animal Dealers: Evidence of Abuse of Animals in the Commercial Trade 1952-1997. Washington, DC: Animal Welfare Institute, 1997.

¹⁶⁶ Jackson County Board of Commissioners Meeting Minutes. 7 Jun 2004. Jackson County. 23 Aug 2008. <<http://www.co.jackson.mi.us/comm/minutes/AG/6-7-04.asp>>.

¹⁶⁷ Hodgins, Janice. Phone Call/Inquiry. 11 Dec 2008.

¹⁶⁸ See Appendix A. Table 3.

¹⁶⁹ Middle Fork Kennels appears to be defunct. It was owned by the same dealers now operating under USDA Class B dealer license 43-B3631 (Tony and Becky Schachtele, doing business as Schachtele Auction Service (Keytesville, Missouri)).

¹⁷⁰ See *infra* pg. 21.

¹⁷¹ Between 2004 and 2007, the University of Michigan, Ann Arbor purchased four live cats and seven live dogs from Hodgins Kennels for use in teaching protocols.

¹⁷² Between 2005 and 2006, University of Minnesota, St. Paul purchased 30 dogs from Hodgins Kennels.

¹⁷³ Some of whom were rejected or returned for unknown reasons.

¹⁷⁴ Based upon USDA documents received through FOIA, these dogs were driven in a truck along with 44 dogs purchased from R&R Research in Howard City, MI. (Also see the section of R&R Research below.)

¹⁷⁵ Meunier, LaVonne, D. "Selection, Acclimation, Training, and Preparation of Dogs for the Research Setting." *ILAR Journal* 47(4)(2006):326-347.

¹⁷⁶ Swallow, Jeremy, et al. "Guidance on the transport of laboratory animals: Report of the Transport Working Group established by the Laboratory Animal Science Association (LASA)." *Laboratory Animals* 39 (2005):1-39.

¹⁷⁷ Conditioned dogs are those who have been held for at least 30 days, vaccinated, and treated for internal and external parasites. (See: Unit for Laboratory Animal Medicine, University of Michigan Medical School, Ann Arbor. "Canine Receiving, Quarantine, and Conditioning Protocol." Undated. University of Michigan. 3 September 2008<www.ulam.umich.edu/sops/Quarantine%20Dog%208-05.pdf>.)

¹⁷⁸ Hodgins Kennels, Inc. Invoice #4116. 14 Dec 2007.

¹⁷⁹ Hodgins Kennels, Inc. Invoice #3545. 17 Aug 2005.

¹⁸⁰ *Id.*

¹⁸¹ *Hodgins. v. USDA*, 33 Fed. Appx. 784, WL 649102(6th Cir., 2002) available at http://www.usda.gov/da/oaljdecisions/vol61/Vol61_at_19.htm.

¹⁸² For information on AWA violations from 1988-1994, see: Drayer, Mary Ellen, ed. The Animal Dealers: Evidence of Abuse of Animals in the Commercial Trade

\$16,000 and issued a cease and desist order for 61 AWA violations. Those penalties were eventually whittled down to 15 violations, a \$325 fine, and a cease and desist order.¹⁸³ In 2006, commissioners in the Michigan counties of Gladwin and Jackson voted to stop county animal shelters from selling dogs to dealers, including Hodgins.¹⁸⁴ Hodgins had been “receiving” dogs from the Jackson County Animal Shelter for 30 years.¹⁸⁵

Despite Hodgins Kennels’ consistent pattern of AWA violations, it continues to reap profits as colleges and universities continue to patronize this dealer. Between 2005 and 2007, Hodgins Kennels sold 1,882 live animals and 1,659 frozen animals and grossed a whopping \$742,128.¹⁸⁶ In addition, Hodgins reported that Great Lakes Biologicals sold 37,730 frozen animal cadavers between 2005 and 2007 and grossed \$246,256 for these sales.

• **R&R Research (Howard City, Michigan)**

Owned by Roberta and James Woudenberg, R&R Research has been a licensed USDA Class B animal dealer since 1969.¹⁸⁷ R&R Research sells cats and dogs originally obtained from other Class B random source animal dealers (such as Cheri-Hill Kennel & Supply in Stanwood, Michigan),¹⁸⁸ and from random sources (such as local animal shelters).¹⁸⁹ For example, R&R Research removed dead animals from the Montcalm County Animal Shelter and received saleable live animals as payment for this service.¹⁹⁰ Because of public outrage, however, the Montcalm County Board of Commissioners formed an ad hoc committee to review the shelter’s policies, and this committee voted to not renew its five-year contract with R&R.^{191,192,193}

Cited for inhumane treatment and illegal acquisition of animals.

Sold 1,855 live animals from 2005-2007, earning \$558,486.

As previously stated, R&R is a part of a network of Missouri- and Michigan-based animal dealers that have sold and transported at least 44 dogs over 1,000 miles to the University of Florida, Gainesville between November 2005 and January 2008. Several dogs sold or transported by Hodgins Kennels to the University of Florida had been acquired or held by R&R Research. Some dogs were shuffled among dealers before arriving at the University of Florida. One example is an adult male beagle who was released from Midland County Animal Control (Midland, MI) on May 20, 2005 to Cheri-Hill Kennel & Supply. Cheri-Hill then sold the beagle five months later to R&R Research, which then sold the dog to the University of Florida in November 2005.¹⁹⁴

Between September 2004 and October 2008, R&R Research sold 94 dogs and four cats to University of Michigan, Ann Arbor for use in education. According to one invoice received through our FOIA request, R&R charged the University \$140 for each “semi-conditioned”¹⁹⁵ dog in a shipment of eight dogs in 2004. In addition, between 2005-2006, Michigan State University (East Lansing, MI) purchased 17 mixed breed dogs from R&R for use at its College of Veterinary Medicine. University of Georgia College of Veterinary Medicine and University of Minnesota,

¹⁹²⁻¹⁹⁹⁷. Washington, DC: Animal Welfare Institute, 1997.

¹⁸³ *Id.*

¹⁸⁴ Anonymous. “Jackson County Stops Selling Pound Animals to Labs.” *Animal People News* Sep 2006. *Animal People News* 23 Aug 2008. <<http://www.animalpeoplenews.org/06/09/tsg.jacksoncounty09.06.htm>>.

¹⁸⁵ Jackson County Board of Commissioners Meeting Minutes. 7 Jun 2004. Jackson County. 23 Aug 2008. <<http://www.co.jackson.mi.us/comm/minutes/AG/6-7-04.asp>>.

¹⁸⁶ Information obtained from this dealer’s USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

¹⁸⁷ Drayer, Mary Ellen, ed. *The Animal Dealers: Evidence of Abuse of Animals in the Commercial Trade 1952-1997*. Washington, DC: Animal Welfare Institute, 1997.

¹⁸⁸ See *infra* pg. 24 Information obtained from several records of animal sales by R&R Research.

¹⁸⁹ These Michigan-based random sources include Gratiot County Animal Control in Ithaca, Mecosta County Animal Control in Big Rapids, Midland County Animal Control in Midland, and Montcalm County Animal Control in Stanton.

¹⁹⁰ Ogg, Aaron. “Montcalm County studies its contract with animal research supplier; takes heat from community.” *The Grand Rapids Press* 26 Jan 2009. Mlive.com. 28 Jan 2009. <http://www.mlive.com/news/grandrapids/index.ssf/2009/01/montcalm_county_studies_its_co.html>.

¹⁹¹ Jeltema, Ryan. “Animal shelter panel to meet today.” *The Daily News* 5 Feb 2009. *The Daily News* 6 Feb 2009. <<http://www.thedailynews.cc/print.asp?ArticleID=25088&SectionID=2&SubSectionID=11>>.

¹⁹² Jeltema, Ryan. “Panel Recommends to End R&R Research Deal.” *The Daily News* 26 Mar 2009 *The Daily News* 29 Mar 2009. <<http://www.thedailynews.cc/main.asp?SectionID=2&SubSectionID=2&ArticleID=26226>>.

¹⁹³ The Montcalm County Board of Commissioners will review the decision on April 27, 2009.

¹⁹⁴ Dog ID/USDA Number E5404.

¹⁹⁵ According to the R&R Research “Protocol for Conditioned Canines” accompanying animal records in the results of our FOIA request, dogs with a ‘semi-conditioned’ status can include those who have tested positive for heartworms.

St. Paul¹⁹⁶ also bought dogs from R&R.

In 2005, USDA cited R&R Research for AWA violations occurring between February 2004 and January 2005.¹⁹⁷ These violations relate to the procurement of 18 cats from Howard City (Michigan) Municipal Services, which was not USDA licensed or operating as a public animal pound or shelter, and the source of the cats was not stated in the records as required by the AWA.¹⁹⁸

In 2005, a USDA Inspector found that a dog escaped from a building after jumping through an open window and was eventually found by a member of the public.¹⁹⁹ In November 2006, a USDA Inspector cited R&R Research for violating the AWA by transporting dogs chained inside a livestock trailer.^{200,201} During a USDA inspection trace-back of animal records to their original sources in 2007, it was discovered that R&R Research had accepted two cats from a person who found them as strays.^{202, 203, 204} Similarly, during a trace-back in 2008, it was found that R&R had obtained three dogs and one cat from three different people, none of whom had raised the animals on their premises.^{205,206}

Despite treating animals inhumanely, obtaining animals through suspect means, and being cited for several AWA violations, R&R Research sold 1,855 animals between 2005 and 2007 and grossed \$558,486 in sales.

Cited for violations including dangerous and unsanitary cages, failure to provide veterinary care, and falsified records and illegal acquisition of animals.

Sold 2,395 animals from 2004-2006, earning \$280,000.

License suspended in 2006.

• C&C Kennels (Wewoka, Oklahoma)

Operated by Henry Lee Cooper, C&C Kennels is a USDA licensed Class B dealer that sells live cats, dogs, and rabbits obtained from random sources. According to our investigation, several Oklahoma schools have purchased animals from C&C. For example, from 2005-2007, Oklahoma State University Laboratory Animal Resources Unit in Stillwater purchased 459 live dogs from C&C Kennels.²⁰⁷ During these same years, the University of Oklahoma Health Sciences Center in Oklahoma City bought seven live dogs from C&C Kennels for use in education, and also purchased live kittens in 2006 and 2007. Invoices indicate that kittens were purchased for \$100²⁰⁸ each, and dogs were purchased for \$150-\$200.^{209,210,211}

According to Institutional Animal Care and Use Committee (IACUC) animal use protocols received through our FOIA request, once each year from 2007-2010 the University of Oklahoma's College of Medicine Pediatrics Department planned to use four 10-12 week old kittens purchased from C&C Kennels to teach human neonatal intubation techniques to nursing and medical students. The kittens are not euthanized and are "recycled" for other procedures or experiments. However, the invoice states that the kittens received in 2007 were only eight weeks old upon delivery the day before the scheduled lab.^{212,213}

¹⁹⁶ Some of whom were rejected or returned for unknown reasons.

¹⁹⁷ USDA. Animal and Plant Health Inspection Service. Investigative and Enforcement Services. Letter (and attachments) to R&R Research. 2 Aug 2005.

¹⁹⁸ See 9 C.F.R. § 2.75(a)(i)(iii); § 2.132(a)(2)(b)(d); § 2.133(b)(4)(6).

¹⁹⁹ USDA APHIS Inspection Report. 18 Nov 2005.

²⁰⁰ Dogs and cats must be contained in an individual enclosure during transport. 9 C.F.R. § 3.14(a).

²⁰¹ USDA APHIS Inspection Report. 7 Nov 2006.

²⁰² No dealer shall obtain animals from a person who did not breed or raise them on their premises. 9 C.F.R. § 2.132(d).

²⁰³ USDA APHIS Inspection Report. 19 Sep 2007.

²⁰⁴ For information about R&R Research's AWA violations in the 1980s and 1990s, see: Drayer, Mary Ellen, ed. The Animal Dealers: Evidence of Abuse of Animals in the Commercial Trade 1952-1997. Washington, DC: Animal Welfare Institute, 1997.

²⁰⁵ See *supra* note 154.

²⁰⁶ USDA APHIS Inspection Report 14 Nov 2008.

²⁰⁷ Unlike other schools responding to our request, OSU does not categorize animals based on their intended use (i.e., education, research, testing).

²⁰⁸ OUHSC Purchase Requisition Inquiry-Requisition Inquiry for Approval. Requisition ID Number 44040. 9 May 2007.

²⁰⁹ OUHSC Purchase Requisition. Requisition ID Number 40743. 16 May 2006.

²¹⁰ OUHSC Purchase Requisition. Requisition ID Number 41577. 19 Jul 2006.

²¹¹ C&C Kennels Invoice Number 02598. 24 Jul 2006.

²¹² See *supra* note 208.

²¹³ Several medical organizations recommend use of human mannequins over the use of live animals, see Appendix B1, Section 3.

In addition, IACUC protocols show that a doctor at the University of Oklahoma Health Sciences Center used 85 live dogs (over a three year period) purchased from C&C Kennels to teach physicians how to place and remove a heart catheter using various guidance and mapping systems. The dogs were anesthetized before the training session and euthanized at the end. Their hearts were removed, preserved, and analyzed to assess the size of the lesions resulting from the training lab.

According to documents we received from the USDA through our FOIA request, from 2004-2007 Cooper/C&C Kennels was cited for multiple AWA violations.^{214,215} These often-repeat violations relate to: dogs in danger of injury from structurally-unsound cages; inadequate pest prevention/control; rabbits kept in filthy cages; overcrowding of rabbit cages; dirty water containers; failure to maintain an adequate veterinary care program; dogs in apparent need of veterinary care (e.g., bloody diarrhea); keeping of unidentified animals; animals acquired from unidentified sources; excess animal waste in cages; dogs kept without access to shelter; and creation of false acquisition records, among others. On August 27, 2007, USDA filed an official complaint against Cooper regarding these AWA violations.²¹⁶ On August 26, 2008, Cooper's license was suspended for five years.²¹⁷ However, until the license renewal date, May 19, 2009, the suspension applies only to Cooper's acquisition of animals.

Cited for multiple, repeat violations including dogs in visible need of veterinary care, improper records, and unsanitary cages.

Sold 2,300 animals from 2005-2007, earning \$169,225.

Cited for violations including illegal acquisition of animals, unsanitary cages, and a dog visibly infested with ticks.

Despite all of this, C&C Kennel sold 2,395 animals from 2004-2006 and grossed an incredible \$280,000 from these sales.²¹⁸

• **Mountain Top Kennels (Wallingford, Kentucky)**

Owned by Perry and Crystal Foster, Mountain Top Kennels is a USDA-licensed Class B dealer that sells cats and dogs obtained from random sources. Purdue University has purchased hundreds of animals for teaching experiments from LBL Kennels, which gets most of its animals from Mountain Top Kennels.

According to the USDA inspection reports from 2005-2007 received through our FOIA request, Mountain Top Kennels was cited for multiple, often-repeat AWA violations, including: dogs visibly in need of veterinary care; animal food exposed to possible contamination; dogs and cats with frozen water bowls; excessive fecal waste in cat and dog cages; lack of written veterinary care program; dogs with collars that visibly were too tight; missing paperwork regarding the acquisition of 27 dogs; and dirty and unsanitary dog cages.²¹⁹

Even though Mountain Top Kennels repeatedly violated the AWA, it sold over 2,300 animals between 2005 and 2007 and grossed \$169,225 from these sales.²²⁰

• **LBL Kennels (Reelsville, Indiana)**

Operated by Mark and Penny Lynch, LBL Kennels is a USDA-licensed Class B dealer that breeds dogs and also sells dogs obtained from random sources such as local dog bunchers and other random source animal dealers, including Mountain Top Kennels in Wallingford, Kentucky and Middle Fork Kennels in Salisbury, Missouri.²²¹

One school that has purchased dogs repeatedly from LBL Kennels is Purdue University. Between 2005-2007,

²¹⁴ USDA APHIS Inspection Reports dated: 27 Jul 2005; 26 Oct 2006; 15 Nov 2006; 13 Mar 2007; 25 Jun 2007; and 24 Oct 2007.

²¹⁵ United States Department of Agriculture. Complaint against Henry Lee Cooper (Respondent). AWA Docket No. 07-0181. 27 Aug 2007.

²¹⁶ *Id.*

²¹⁷ United States Department of Agriculture. Consent Decision and Order regarding Henry Lee Cooper (Respondent). AWA Docket No. 07-0181. 26 Aug 2008. USDA. 16 Dec 2008. <www.usda.gov/da/oaljdecisions/AWA-07-0181_080827.pdf>.

²¹⁸ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

²¹⁹ USDA APHIS Inspection Reports: 21 Mar 2006; 6 Jun 2006; 18 Oct 2006; 2 Jul 2007; 1 Aug 2007; 25 Oct 2007, and 30 Oct 2007.

²²⁰ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2004-2006.

²²¹ Middle Fork Kennels appears to be defunct. It was owned by the same dealers now operating under USDA Class B dealer license 43-B-3631 (Tony and Becky Schachtele, doing business as Schachtele Auction Service (Keytesville, Missouri)).

Dying to Learn

Sold 3,055 animals from 2005-2007, earning \$738,000.

Purdue purchased 335 dogs from LBL for use in education, and 218 of them were obtained directly from Mountain Top Kennels, another Class B random source dealer that has a history of AWA violations.²²²

According to USDA reports we received through our FOIA request, LBL Kennels was cited by the USDA in 2007 for several AWA violations, including: the purchase of over 25 dogs from two unlicensed individuals; rusty and unsanitary dog cages; unsanitary dog food and water bowls; and a dog visibly infested with ticks.²²³

Cited for violations including improper documentation and inadequate veterinary care.

Although dogs held by LBL Kennels were inhumanely treated and illegally acquired, it sold 3,055 animals between 2005 and 2007 and grossed \$738,000 from these sales.²²⁴

• Robert Perry (Mt. Sterling, Ohio)

Robert Perry is a USDA-licensed Class B dealer who sells cats, dogs, and other animals obtained from random sources. From 2005-2007, The Ohio State University (OSU) purchased 136 dogs and cats from Perry for use in education.²²⁵ Most, if not all, of these animals were euthanized at OSU.

Sold 938 animals from 2005-2007, earning \$241,314.

In 2006, USDA cited Robert Perry for multiple AWA violations occurring between August 2004 and March 2005.²²⁶ These violations relate to his failure on 44 occasions to get proper and complete certification from animal dealers who sold animals to him, in order to demonstrate that the animals were legally obtained. Perry was also cited for an inadequate veterinary care program. Perry was offered to settle the matter by paying a \$200 penalty.²²⁷

Despite the AWA violations, Robert Perry sold 938 cats and dogs from 2005-2007, resulting in \$241,314 in gross profits.²²⁸

One dog spent nearly a year at the dealer, before being transported over 1,000 miles by truck.

• Cheri-Hill Kennel & Supply (Stanwood, Michigan)

Cheri-Hill Kennel & Supply is a USDA-licensed Class B dealer that sells live dogs obtained from random sources, including pounds. For example, Cheri-Hill Kennel & Supply has an agreement with the Osceola County shelter in Reed City, Michigan through which it disposes of animals euthanized at the shelter in exchange for live shelter animals, who can be sold to research and teaching facilities.²²⁹ The University of Georgia College of Veterinary Medicine has purchased live dogs from Cheri-Hill.

Sold 1,056 animals from 2005-2007, earning \$77,800.

Cheri-Hill also obtains live dogs from local animal control pounds and subsequently sells or otherwise transfers the dogs to R&R Research (described above as an ongoing AWA violator). In some cases, dogs obtained from animal control facilities spend an extraordinary amount of time at Cheri-Hill. One example is an adult male pitbull-hound mix who was released from Mecosta County Animal Control (Big Rapids, MI) to Cheri-Hill on January 11, 2007.²³⁰ Almost one year later, on December 31, 2007, the dog was sold/transferred to R&R Research (described above) and sold to the University of Florida, where he arrived on January 10, 2008 after being driven over 1,000 miles in a truck.

²²² See Mountain Top Kennels. *Supra*. pg. 23.

²²³ USDA APHIS Inspection Report, 26 Sep 2007.

²²⁴ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

²²⁵ See Protect Our Earth's Treasures (POET) website listing The Ohio State University's animal use protocols involving dogs at http://www.poetwill.org/osu_dogs.htm.

²²⁶ USDA. Animal and Plant Health Inspection Service. Investigative and Enforcement Services. Letter (and attachments) to Robert Perry. 23 Feb 2006.

²²⁷ *Id.*

²²⁸ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

²²⁹ Barber, Sally. "Not All Happily Ever After." *Cadillac News* 2 Oct 2008. *Cadillac News* 17 Nov 2008. <<http://www.cadillacnews.com/articles/2007/10/04/news/news02.txt>>.

²³⁰ Dog ID/USDA Number E6962.

Between 2005 and 2007, Cheri-Hill Kennel and Supply sold 1,056 animals and grossed over \$77,800.²³¹

Numerous violations including illegal acquisition of animals and inadequate veterinary records.

• **Triple C Farms (St. Joseph, Illinois)**

Triple C Farms was a USDA licensed Class B dealer that sold dogs obtained from random sources.²³² Between 2005-2006, the University of Illinois-Chicago purchased 12 dogs from Triple C Farms.

According to documents received from the USDA through our FOIA request, in 2005 Triple C Farms was inspected and cited by a USDA Veterinary Medical Officer for purchasing dogs from unlicensed sellers, in violation of AWA regulations.²³³ It was also cited in 2005 for inadequate veterinary records and structural damage near dog cages that was potentially hazardous to the dogs.²³⁴

Despite these AWA violations, Triple C Farms sold over 600 animals, resulting in \$210,148 in gross sales.²³⁵

Conclusion

As shown, there are a number of schools that purchase live dogs and cats from Class B random source dealers that repeatedly violate humane care standards under the AWA or obtain animals from illegal sources. Additionally, in several cases, animals originally obtained from animal shelters are being held for a significant period of time at dealer facilities and shipped out of state, sometimes over 1,000 miles away. Studies show that such dogs obtained from random sources can harbor infections and suffer stress during transport, which are significant animal welfare concerns as well as confounding factors that can negatively affect experiments. Rather than supporting these dubious dealers, these schools should invest in humane and effective alternatives.

Greed can result in animals being euthanized and sold to biological supply companies instead of being offered for adoption.

2. Class B Dealers – Biological Supply Companies

Colleges and universities often purchase dead cats and dogs, called specimens or cadavers,²³⁶ from biological supply companies. Biological supply companies make up a multi-million dollar industry that profits from the sale of live animals for classroom vivisection, as well as animal cadavers, including those of companion animals, for the purpose of classroom dissection (See Appendix A. Table 3). Dog and cat cadavers can be purchased for \$2 to \$3 from an animal shelter,²³⁷ and sold for \$95.00 to a college or university.^{238, 239}

Biological supply companies provide materials for science courses at the K-12, college, veterinary, and medical level.²⁴⁰ For example, biological supply companies offer cats for dissection who have been triple injected with colored latex and can come either skinned or not skinned. Another option is to order a cat who is pregnant and has been injected with color-coded latex (For alternatives to cat dissection, see Appendix B.1.).

USDA regulates the companies that supply these cadavers to colleges and universities as Class B dealers (See Appendix A. Table 3.). Many of these companies get their animals from other Class B dealers, including random

²³¹ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

²³² Triple C Farms is no longer a licensed Class B dealer. See USDA APHIS, Animal Welfare, License and Registration List, Dealers, 9 Jan 2009. APHIS. 7 Feb 2009. <http://www.aphis.usda.gov/animal_welfare/efoia/downloads/reports/B_cert_holders.txt>.

²³³ USDA. APHIS Inspection Report. 30 Nov 2005.

²³⁴ USDA. APHIS Inspection Report. 20 May 2005.

²³⁵ Information obtained from this dealer's USDA APHIS Class B Dealer License Renewal Applications for the years 2006-2008.

²³⁶ The Animal Welfare Act defines "animal" to include both live or dead dogs and cats. 7 U.S.C. § 2132.

²³⁷ Porter County Animal Shelter in Valparaiso, Indiana is an example of a shelter that sells euthanized cats to NASCO, a biological supply company, and who has contracted with them for 10-15 years. The Aristotle Corporation, doing business as NASCO, purchases cats for \$3 each, and requires that the animals be in good health and not injured. According to the shelter director, they do not look at a cat and think of the profit they can derive from euthanizing the animal and selling it to NASCO. Lavalley, Amy. "Animal Shelter Providing Kitty Carcasses to Science." *Post-Tribune* 28 April 2008. 9 May 2008. <<http://www.post-trib.com/news/918605,vcats.article>>.

²³⁸ ENasco. "Triple-injected pregnant cat specimen. 30 Dec. 2008. <<http://www.enasco.com/product/LS03598MH>>.

²³⁹ Grambling State University, New Mexico State University, Texas A & M College Station, and University of Louisiana-Monroe are examples of schools purchasing cat cadavers from NASCO as recently as 2007.

²⁴⁰ Biological supply companies also sell some alternatives to dissection and related animal use, such as CD-ROMs, models, videos, and charts. While their income can be derived from supplies such as microscopes, curricula, and technology, they also sell various live and dead species of animals for research and education.

source dealers,²⁴¹ and often have contracts with pounds and shelters to obtain dog and cat cadavers, which they in turn sell at a profit to colleges and universities. In addition, according to Wayne Carley, Executive Director of the National Association of Biology Teachers Association, cats also come from shelters or dealers in Mexico.²⁴²

In this section, we present our findings on the schools that are purchasing cats and dogs from biological supply companies for teaching purposes, and examine the potential for abuse and misconduct when shelter animals are made available to biological supply companies. Our findings show that greed can result in animals being euthanized and sold to these companies instead of being offered for adoption. The problem is not restricted to the U.S. U.S. biological supply companies also exploit the poverty of Mexico to obtain a cheap source of dog and cat cadavers.

Given the corrupt and inhumane practices associated with some biological supply companies, there are no justifiable reasons for schools to buy animals from biological supply companies. For example, innovative humane alternatives to traditional animal dissections are available to provide life science students a realistic understanding of anatomy and physiology, and even to improve student learning and performance. (See Appendix B.1.)

a. Universities Acquiring Animals from Biological Supply Companies

Animalearn surveyed biology departments from 150 colleges and universities regarding their use of dog and cat cadavers and received a response rate of 20%. At least 63% of the biology departments responding to the survey indicate that they use companion animal cadavers to teach anatomy and/or physiology.²⁴³

IACUC records indicate that various universities purchase companion animal cadavers from biological supply companies (See Appendix A. Table 3.). Some of these universities include Texas A&M College Station,²⁴⁴ Texas A&M Kingsville; Bemidji State University (MN),²⁴⁵ California State University Bakersfield,²⁴⁶ California State University-Dominguez Hills,²⁴⁷ California State University-Fresno,²⁴⁸ Colorado State University-Pueblo,²⁴⁹ Grand Valley State University (MI),²⁵⁰ Minnesota State University,²⁵¹ Sonoma State University,²⁵² University of North Carolina- Charlotte,²⁵³ University of North Carolina- Pembroke; University of Texas Pan Am,²⁵⁴ and University of Illinois Champaign/Urbana,²⁵⁵ Grambling State University (LA),²⁵⁶ New Mexico State University,²⁵⁷ and University of Louisiana-Monroe.²⁵⁸

b. Sargeant's Wholesale Biological (Bakersfield, California)

Sargeant's Wholesale Biological, one of the biological supply companies selling animal cadavers to colleges and universities, faces allegations of bribery and animal cruelty. The owner, Michael Sargeant, along with two

²⁴¹ Animal and Plant Health Inspection Service. "Animal Care: A New Era in Animal Welfare." Feb 2002. Aphis.usda.gov. 20 Dec 2008. <http://search.usda.gov/search?q=cache:YMJkXoivs3MJ:www.aphis.usda.gov/publications/animal_welfare/content/printable_version/fs_awnwera.pdf+Class+B&access=p&output=xml_no_dtd&ie=UTF-8&client=default_frontend&site=APHIS_MAIN&proxystylesheet=default_frontend&oe=UTF-8>.

²⁴² Austin, April. "A second Look at the Biology Lab." *The Christian Science Monitor* 8 Jun 2004.

²⁴³ Animalearn Survey of College and University Biology Departments. Apr 2008..

²⁴⁴ Purchased 304 cat cadavers in 2006 from NASCO and Sargeant's Wholesale Biological.

²⁴⁵ Purchased 27 cat cadavers from Carolina Biological Supply and NASCO in 2005; 40 cat cadavers from Carolina Biological Supply and Fisher Scientific Co. in 2006; and 59 cat cadavers from Carolina Biological Supply and Fisher Scientific in 2007.

²⁴⁶ Purchased cat cadavers from Sargeant's, as well as from The Bio Corporation, averaging 70 cats per year.

²⁴⁷ Purchased 34 cat cadavers from Fisher Scientific Co. and Carolina Biological Supply in 2005, and 35 cat cadavers from Fisher Scientific Co. and Carolina Biological Supply in 2006.

²⁴⁸ Purchases 70 cat cadavers per year from Delta Biologicals.

²⁴⁹ Purchased 84 cat cadavers in 2005, 39 cat cadavers in 2006, and 45 cat cadavers in 2007 from Ward's Natural Science and At Home Science.

²⁵⁰ Purchased 4 cat cadavers from VWR International Inc. in 2006, and 8 cat cadavers from Fisher Scientific in 2007.

²⁵¹ Purchased 37 cat cadavers in 2005, 40 cat cadavers in 2006, and 59 cat cadavers in 2007 from Fisher Scientific Co., Carolina Biological Supply, and NASCO.

²⁵² Purchased 16 cat cadavers in 2005, 16 cats cadavers in 2006, and 16 cat cadavers in 2007 from Carolina Biological Supply.

²⁵³ Purchased 20 cat cadavers in 2005, and 10 cat cadavers in 2006 from Fisher Scientific Co., and Ward's Natural Science.

²⁵⁴ Purchased 105 cat cadavers in 2006 and 178 in 2007 from The Bio Corporation.

²⁵⁵ Acquired 546 cats and 546 dogs from Carolina Biological Supply, as well as from several animal shelters in 2005.

²⁵⁶ Purchased 31 cat cadavers in 2007 from Carolina Biological Supply and NASCO.

²⁵⁷ Purchased 50 cat cadavers in 2005, and 55 cat cadavers in 2006 from NASCO.

²⁵⁸ Purchased 7 cat cadavers in 2007 from NASCO.

shelter employees from Tulare County Animal Control Shelter, are accused of participating in an off-the-books arrangement to provide Sargeant with cadavers in exchange for compensation. They face a combined total of 13 felony counts.

The three individuals allegedly carried out unauthorized “mass euthanasias, reportedly using nonstandard and painful methods, by falsifying records to cover their actions.”²⁵⁹ Other allegations include beating shelter dogs, providing insufficient food, denying water in hot weather, and euthanizing companion animals before making them available for adoption.²⁶⁰

One of the shelter employees, ex-Shelter Manager William Harmon, was convicted September 24, 2008 on two felony counts of accepting bribes, a felony count of embezzlement, and a misdemeanor charge of accepting unlawful gratuity, all related to his actions performed while managing the Tulare County Animal Control Shelter. The jury found that on three separate occasions, Harmon provided Sargeant with euthanized dogs from the shelter in exchange for restaurant gift certificates, which he requested and accepted.

The owner of Sargeant's Wholesale Biological allegedly bribed shelter employees to sell him animals instead of making them available for adoption.

In court records, a shelter worker indicated that Sargeant preferred 30-50 pound pregnant or unsterilized dogs.²⁶¹ The shelter had had a contract with Sargeant, allowing him to purchase cat carcasses for \$3 from the shelter, but the contract expired in 2002 and was not renewed, nor did he have a contract to take canine carcasses, yet he allegedly continued to obtain carcasses until 2006. Sargeant has pleaded not guilty. The shelter is no longer working with Sargeant's Wholesale Biological.²⁶²

Sargeant's Wholesale Biological acquires the companion animal cadavers it sells from a variety of other shelters, including one in Oklahoma City^{263,264} whose recent one-year contract²⁶⁵ for cat carcasses netted \$8,750 in revenue, at \$2.50 per carcass;²⁶⁶ and one in San Antonio, whose one-year contract²⁶⁷ allowed Sargeant's to buy carcasses at the rate of \$2.50²⁶⁸ or \$5.00²⁶⁹ per animal.

Although the owner of Sargeant's Wholesale Biological has been charged with bribery and is connected to animal cruelty, his company continues to sell animal carcasses to schools, colleges, and universities. Many universities have bought cadavers from Sargeant's, and Sargeant's remains an approved vendor for several well-respected educational institutions, such as the University of Pennsylvania²⁷⁰ and Michigan State University.²⁷¹

²⁵⁹ Branco, Shellie. “Animal Cruelty, Bribery Charged.” *The Bakersfield Californian* 1 Jul 2007. Bakersfield.com. 6 Aug 2008. <http://www.bakersfield.com/hourly_news/story/178792.html>.

²⁶⁰ *Id.*

²⁶¹ Wilkison, Brett. “Ex-shelter Manager found Guilty.” *Visalia Times Delta* 25 Sep 2008. 26 Sep 2008. <<http://www.visaliatimesdelta.com/apps/pbcs.dll/article?AID=2008809250314>>..

²⁶² Branco, Shellie. “Animal Cruelty, Bribery Charged.” *The Bakersfield Californian* 1 Jul 2007. Bakersfield.com. 6 Aug 2008. <http://www.bakersfield.com/hourly_news/stor/178792.html>.

²⁶³ Oklahoma City Journal of Council Proceedings Regular City Minutes. *Oklahoma City* 27 Mar 2007. *Oklahoma City* 10 Aug 2008. <http://www.okc.gov/council/council_library/Minutes/070327.html>.

²⁶⁴ Oklahoma City Journal of Council Proceedings Regular City Minutes. *Oklahoma City* 21 Jan 2004 *Oklahoma City* 15 Aug 2008. <http://www.okc.gov/council/council_library/minutes/040121.htm>.

²⁶⁵ March 2007 to March 2008

²⁶⁶ Estus, J. “Animal Advocate Criticizes Sale of Carcasses.” *The Oklahoman* 28 Mar 2007.

²⁶⁷ April 21, 2003 to April 20, 2004. San Antonio City Council Meeting. Ordinance 30. 17 Apr 2003. <<http://epay.sanantonio.gov>. 19 Feb 2009. <<http://epay.sanantonio.gov/archivedagendas/04-17-03.asp>>.

²⁶⁸ Under 12 lbs. San Antonio City Council Meeting. Ordinance 30. 17 Apr 2003. <<http://epay.sanantonio.gov>. 19 Feb 2009. <<http://epay.sanantonio.gov/archivedagendas/04-17-03.asp>>.

²⁶⁹ Over 12 lbs. San Antonio City Council Meeting. Ordinance 30. 17 Apr 2003. <<http://epay.sanantonio.gov>. 19 Feb 2009. <<http://epay.sanantonio.gov/archivedagendas/04-17-03.asp>>.

²⁷⁰ Ben Buys Approved Supplier List. *University of Pennsylvania*. 8 Mar 2009. *University of Pennsylvania*. 10 Aug 2008. <http://www.upenn.edu/purchasing/vendors/s_vendor.htm>.

²⁷¹ Michigan State University Purchasing. *Michigan State University*. 2008. *Michigan State University*. 1 Aug 2008. <http://purchasing.msu.edu/MBE_commodity.asp?Suppln=040>.

Additionally, Texas A&M University²⁷² and California State University-Bakersfield have purchased cat carcasses from Sargeant's,²⁷³ and University of Georgia²⁷⁴ has purchased pregnant dog cadavers.

c. Ranaco/Delta Biological (Tucson, Arizona)

Ranaco, a biological supply company doing business as Delta Biological, obtains already-euthanized cats from shelters in the United States and Mexico.²⁷⁵ Ranaco is also a source of cadavers for other biological supply companies, such as Sargent-Welch,²⁷⁶ located in Buffalo, New York. Records show that California State University-Fresno purchases 70 preserved cats per year from Delta Biological.

Ranaco obtains cats from Mexico for sale in the U.S.

The practice of obtaining cats from Mexico for sale in the United States is questionable as there are concerns that animals suffer inhumane treatment while in Mexican pounds,^{277,278} and there are often insufficient resources and organizations dedicated to the enforcement of laws protecting animals, as well as uneven application of such humane welfare laws to ensure that dogs and cats are given the most humane treatment in pounds.²⁷⁹

Additionally, humane standards and policies regarding holding periods, euthanasia methods, and procurement practices of cats in Mexico can range considerably. Pounds in Mexico are required to hold dogs and cats for only 72 hours, less than the requirement for pounds in the United States that relinquish animals to dealers,²⁸⁰ and the quality of housing conditions and care for some of these animals can be considered inhumane.²⁸¹ According to Norma Oficial Mexicana, official standards and regulations in Mexico, acceptable euthanasia methods include lethal injection for cats and dogs as well as electrocution for dogs and puppies over four months old.^{282,283,284,285} Equipment used to electrocute dogs can be makeshift, outdated, and slow, and though federal law states that animals must be unconscious or sedated before being electrocuted, it is rarely enforced.²⁸⁶

Encouraging the exchange of an animal's life for money or food is a questionable practice, particularly in a country where escaping poverty is a challenge. In the Mexican state of Puebla, for example, there was a program that offered 5,000 food packets to anyone who turned in an ownerless dog to be exterminated.^{287,288} This program was established because there were not enough funds to neuter or vaccinate homeless dogs. However, following the

²⁷² Texas A&M Agency Spending Fiscal Year 2006. Texas A&M University. 20 Jul 2008. Texas A&M University. 19 Mar 2009. <http://www.window.state.tx.us/procurement/hub/hub_report/fy6/agydet/711_agy_det_web.txt>.

²⁷³ Texas A&M University and California State University-Bakersfield IACUC Records.

²⁷⁴ AUP #A2007-10048.

²⁷⁵ Ranaco. Personal communication. 6 Aug 2008.

²⁷⁶ Sargent-Welch. Personal communication. 6 Aug 2008.

²⁷⁷ Espindola, Gerardo Aguirre. School of Veterinary Medicine and Zootecnia of Brock University Autonoma de Puebla. As stated in "Alarming Overpopulation of Dogs and Cats." 7 Dec 2006. Brock University Autonoma de Puebla. 12 Feb 2009. <<http://miniap.universia.net.mx/search/index.php?busqueda=gerardo+aguirre+espindola&SearchButton.x=0&SearchButton.y=0&SearchButton=Search&domains=universia.net.mx&sitesearch=http%3A%2F%2Fwww.universia.net.mx>>.

²⁷⁸ Jose Pedro Cano Celada from The Mexican Association of Veterinary Medicine (AMMVE) stated that there is an average of 3 million stray dogs. As stated in "Alarming Overpopulation of Dogs and Cats." 7 Dec 2006. Brock University Autonoma de Puebla. 12 Feb 2009. <<http://miniap.universia.net.mx/search/index.php?busqueda=gerardo+aguirre+espindola&SearchButton.x=0&SearchButton.y=0&SearchButton=Search&domains=universia.net.mx&sitesearch=http%3A%2F%2Fwww.universia.net.mx>>.

²⁷⁹ Sofia Ponce Partida, VMD, Coordinacion, Programa para el Centro de Alternativas al uso de Animales en la Ensenanza. Email correspondence. 19 Aug 2008.

²⁸⁰ APHIS, USDA. "Final Rule: Random Source Dogs and Cats." Federal Register, Vol. 58.: 139. Jul 22, 1993, P. 39124 (Rule) 1/795 9 CFR Parts 1 and 2. <<http://www.nal.usda.gov/awic/legislat/cat1.htm>>.

²⁸¹ Payne, Christy, VMD. "Why Help Animals in Mexico?" Compassion without Borders. 12 Feb 2009. Compassion without Borders. 19 Mar 2009. <<http://www.cwob.org/why.html>>.

²⁸² 07-16-96 NORMA Oficial Mexicana NOM-033-ZOO-1995. "Humanitarian Sacrifice of Domestic and Wild Animals."

²⁸³ Bonello, D. "Spotlight on dog overpopulation and abuse in Mexico." Los Angeles Times 1 December 2008. Los Angeles Times 9 Mar 2009. <<http://latimes-blogs.latimes.com/laplaza/2008/12/still-on-the-do.html>>.

²⁸⁴ Sofia Ponce Partida, VMD, Coordinacion, Programa para el Centro de Alternativas al uso de Animales en la Ensenanza. Email correspondence. 19 Aug 2008.

²⁸⁵ Norma Oficial Mexicana NOM-033ZOO-1995. "Humanitarian Sacrifice of Domesic and Wild Animals."

²⁸⁶ "Humane Euthanasia." Compassion without Borders. 9 Mar 2009. <<http://www.cwob.org/euthanasia.html>>.

²⁸⁷ "State will trade food for stray dogs." The Boston Globe 13 Aug 1999. Pg. A12.

²⁸⁸ McGirk, Jan. "Dead Dogs Help to Feed the Poor." The Independent 1999 Aug 21. Pg. 12.

launch of the program, there was concern about its potential to encourage people to steal animals or raise puppies specifically to be killed.²⁸⁹

Animals from Mexican pounds are also sold to companies that supply animals for educational purposes. A director²⁹⁰ of a pound in Zapopan, Mexico²⁹¹ resigned from his post following a suspension based on allegations that he used freezers from Pamesa,²⁹² a private company whose dealings with animals is for academic use. Allegedly, the freezers were used to store frozen cats, without a contract, in exchange for furniture for the pound.^{293,294} Pamesa also contracted with The Center for Animal Control, a pound in Guadalajara, Mexico, who sent 30 to 40 cats monthly to the company.²⁹⁵ Clearly, animals from Mexican pounds are being used in education. According to a Mexican news report, some animal cadavers from city pounds end up “at American schools for their study.”²⁹⁶

d. Carolina Biological Supply (Burlington, North Carolina)

Carolina Biological Supply (Carolina) sells both living animals and preserved animal cadavers, including dog and cat cadavers, to schools, colleges, and universities (See Appendix A. Table 3.). Carolina has had contracts to purchase cat cadavers from pounds and shelters from various states, including Iredell County Animal Services²⁹⁷ and Alamance County Animal Control, both in North Carolina.²⁹⁸ This is concerning because both pounds use the gas chamber, which can take up to 25 minutes²⁹⁹ to kill an animal, resulting in a slow death.^{300,301,302}

According to Animalearn’s records, colleges and universities that obtain cat cadavers from Carolina Biological Supply include California State University-Dominguez Hills; California State University- San Bernardino; Sonoma State University (CA); University of Illinois- Urbana-Champaign; Grambling State University (LA); Minnesota State University; Bemidji State University (MN); University of North Carolina- Pembroke; and Texas A&M-Kingsville.

Conclusion

There is considerable profit to be made in the biological supply industry. Ethical questions are raised, however, when money is exchanged for companion animal carcasses, including whether there is a profit motive for pounds or shelters to euthanize rather than adopt out animals who can be sold to biological supply companies.³⁰³ This concern is amplified when biological supply companies go to Mexican shelters and pounds for animal carcasses, particularly since standards for humane treatment are already questionable.

²⁸⁹ Id.

²⁹⁰ Raul Tadeo Ortiz Berriel.

²⁹¹ Center for Animal Health (pound).

²⁹² In Los Mochis, Sinaloa, Mexico.

²⁹³ Also, animals that were brought to the pound were suddenly unable to be located.

²⁹⁴ “Seeking civil servant for illegal trade of cats.” Fuerza Informativa Azteca (television). 7 Mar 2003. Jalisco, Mexico. Translation provided by Sofia Ponce Partida. 18 Aug 2008.

²⁹⁵ Castro, Jose Luis Jimenez. “The Center for Animal Health of Guadalajara keeps freezing cats.” Notisistema (Radio). 19 Feb 2004. Translation Provided by Sofia Ponce Partida. 18 Aug 2008.

²⁹⁶ “Seeking civil servant for illegal trade of cats.” Fuerza Informativa Azteca (television). 7 Mar 2003. Jalisco, Mexico. Translation provided by Sofia Ponce Partida. 18 Aug 2008.

²⁹⁷ In July 2008, there was an explosion inside the gas chamber at Iredell County Animal Services, which contained 10 dogs who were to be euthanized. Reports indicate that Iredell County Animal Services will not use the gas chamber until a vendor determines it is safe to use. “Gas Chamber Use Sparks Small Fire At Iredell County Animal Shelter.” WSOCTV. 22 Jul 2008. WSOCTV. 19 Aug 2008. <<http://www.wsocvt.com/news/16956249/detail.html>>.

²⁹⁸ Preserved Material Department. Carolina Biological Supply Company. Minutes from Kerr County, TX. 23 Jul 2007. Kerr County. 19 Feb 2009. <<http://www.co.kerr.tx.us/commcrt/minutes/2001%20-%202010/2007/July/30399.txt>>.

²⁹⁹ From start to finish. Mott, Maryann. “Animal Gas Chambers Draw Fire in U.S.” National Geographic News 11 Apr 2005. National Geographic News 9 Mar 2009. <http://news.nationalgeographic.com/news/2005/04/0411_050411_peteuthanasia.html>.

³⁰⁰ Saxon, Erik. “State Vote Allows Use Of Gas Chambers To Kill Unwanted Pets.” WSOC TV. 13 Feb 2008. WSOC TV. 19 Feb 2009. <<http://www.wsocvt.com/pets/15294043/detail.html>>.

³⁰¹ “Animal Gas Chambers Draw Fire in U.S.” National Geographic News 11 Apr 2005. National Geographic News 9 Mar 2009. <http://news.nationalgeographic.com/news/2005/04/0411_050411_peteuthanasia.html>.

³⁰² “2007 Marks the End of Gas Chamber for Dogs and Cats in Virginia.” The Humane Society of the United States. 10 Aug 2007. HSUS. 9 Mar 2009. <http://www.hsus.org/press_and_publications/press_releases/2007_marks_end_of_gas_chamber_081007.html>.

³⁰³ Examples are pregnant cats or dogs, or cats or dogs of a specific size.

Several Class A dealers have violated the AWA numerous times.

Investigators found numerous violations, including accumulation of urine in cages, a semi-conscious and shaking newborn puppy, and a dehydrated puppy who had to be euthanized.

Sold 456,227 animals from 2005-2007, earning an undisclosed amount over \$200,000.

3. Class A Dealers

Educational institutions also purchase animals from USDA-licensed Class A dealers, those that meet the definition of dealer and breed animals for sale.³⁰⁴ Our investigation revealed numerous AWA violations at several Class A dealers that provide dogs and cats to universities for teaching purposes. Details about Class A dealers, their violations, and the schools that purchase from them are provided below.

• Marshall Farms Group Ltd. (North Rose, New York)

Marshall Farms Group Ltd. is a USDA-licensed Class A animal dealer that breeds animals for sale, including beagles, ferrets, minipigs, and mongrels/hounds for research, testing, and teaching purposes. It also sells blood, plasma, serum, and tissue derived from animals on site and will perform medical diagnostic procedures (e.g., blood work, echocardiograms, eye exams) on animals before shipping them.³⁰⁵

Animalearn found that, between 2005-2007, Colorado State University, Fort Collins,³⁰⁶ University of Cincinnati,³⁰⁷ University of Texas Southwest Medical Center (Dallas),³⁰⁸ University of Washington (Seattle),³⁰⁹ and University of Wisconsin, Madison³¹⁰ purchased live mixed breed dogs for use in education from Marshall Farms. Oklahoma State University's College of Veterinary Medicine³¹¹ also bought live beagles from Marshall Farms.³¹²

The USDA inspection reports we obtained for 2005-2007 indicate that Marshall Farms had several violations of the AWA. In March 2005, Marshall Farms was found to have unsanitary animal cages, including over-accumulation of dog hair and urine around dogs in cages, strong smell of ammonia (caused by urine) in a building housing dogs, and excessive amounts of urine stains and fecal accumulation under rabbits' cages.³¹³

In February 2006, a USDA inspector found numerous AWA violations resulting from inadequate veterinary care and daily health monitoring that are cause for serious concern, including: a dead puppy kept in a refrigerator used to store drugs; and several dogs with obvious injuries and medical conditions (some of whom had blood in or around their cages), including a semi-conscious and shaking newborn puppy and a dehydrated puppy who had to be euthanized.³¹⁴ The inspector also found dogs kept daily in dark cages; damaged and dirty cages that posed a risk of injury to the dogs; dogs grouped with incompatible dogs (exposing them to injury); and dead and decomposing wild mice in several buildings.

In March 2006, the Inspector found that puppies were being euthanized and necropsied in a medical building in front of hospitalized puppies, potentially causing them distress.³¹⁵ During an inspection in September 2006, an excessive fly infestation in some buildings, including the treatment/necropsy area, was also noted.³¹⁶ In 2007, three

³⁰⁴ Class A dealer is defined by USDA as a person meeting the definition of dealer and "whose business involving animals consists only of animals that are bred and raised on the premises in a closed or stable colony and those animals acquired for the sole purpose of maintaining or enhancing the breeding colony." 9 C.F.R. § 1.1.

³⁰⁵ Marshall Bioresources, "Animals and Services: Services: Diagnostic Services." Undated. Marshallbio.com. 12 Oct 2008<<http://www.marshallbio.com/>>.

³⁰⁶ Between 2005-2007, 50 dogs were purchased from Marshall Farms.

³⁰⁷ In 2005, 20 mixed breed dogs, many of whom were puppies, were purchased from Marshall Bioresources.

³⁰⁸ Between Sep 2005 and Jun 2007, 51 dogs were bought from Marshall Farms.

³⁰⁹ Between 2005-2007, 41 dogs were bought from Marshall Farms.

³¹⁰ In 2005, 24 dogs were purchased from Marshall.

³¹¹ Between 2006-2007, 23 beagle puppies were purchased from Marshall Farms.

³¹² Oklahoma State does not keep records of how animals are used (i.e., research vs. education) so it is unclear if the beagles are used for education.

³¹³ USDA. APHIS Inspection Report. 30 Mar 2005.

³¹⁴ USDA. APHIS Inspection Report. 14 Feb 2006.

³¹⁵ USDA. APHIS Inspection Report. 15 Mar 2006.

³¹⁶ USDA. APHIS Inspection Report. 21 Sep 2006.

young dogs were found with their bodies and their cages covered in blood after having their nails trimmed.³¹⁷ Three other dogs were found with their cage door left open, and loose ferrets were observed both inside and outside buildings.

Despite the inhumane treatment of animals represented by these numerous, serious AWA violations, between 2005-2007 Marshall Farms Group Ltd. sold 456,227 animals, grossing over \$600,000.³¹⁸

• **Covance Research Products Inc. (Denver, Pennsylvania)**

Covance Inc., headquartered in Princeton, New Jersey, is one of the largest drug development and testing companies worldwide. Its subsidiary, Covance Research Products, Inc., also breeds and sells dogs, rabbits, and macaque monkeys to research, testing, and teaching laboratories. Covance Research Products is a USDA-licensed Class A breeder (based in Denver, Pennsylvania with sites in other states such as Michigan and Virginia)³¹⁹ and also a Class B dealer (based in Alice, Texas).³²⁰

Breeds and sells dogs, rabbits, and macaque monkeys.

Sold 240,867 animals from 2004-2006, earning nearly \$50 million.

We found that Covance Research Products sells and donates live dogs to a number of universities. One of the biggest purchasers of dogs from Covance Research Products is University of Michigan, Ann Arbor, which bought a total of 354 dogs from Covance from 2004-2006.³²¹ Other universities receiving dogs from Covance Research Products include: Michigan State University, East Lansing;³²² University of Wisconsin, Madison;³²³ University of Cincinnati (Ohio);³²⁴ University of Georgia College of Veterinary Medicine;³²⁵ University of North Carolina, Chapel Hill;³²⁶ University of Minnesota, St. Paul;³²⁷ and University of Texas Southwest Medical Center (Dallas).³²⁸ It should be noted that the University of Minnesota returned two hounds to Covance: one 10 month-old was considered to be underweight and one month too young, and one nine month-old was considered underage by two months.³²⁹

According to the USDA inspection reports we obtained, over a two-week period in August 2006, Covance Research Products staff allowed temperatures in dog housing facilities to rise above 90 degrees Fahrenheit.^{330,331} Covance Laboratories, Inc., which is located at a different location(s) and operates as a USDA-

³¹⁷ USDA. APHIS Inspection Report. 17 Oct 2007.

³¹⁸ On each of its three USDA APHIS License Renewal Applications, Marshall Farms Group Ltd. reported its total gross amount derived from animal sales as "Over \$200,002." According to AWA regulations (9 C.F.R. § 2.6) the fee to renew a Class A or B dealer license is based upon half of a company or individual's sales, and the maximum fee possible is for those whose 50 percent profits are greater than \$100,000 (i.e., grossing over \$200,000). Therefore, Marshall Farms Group Ltd.'s profits are likely significantly higher.

³¹⁹ United States Department of Agriculture. Animal and Plant Health Inspection Service. Animal Welfare Electronic Freedom of Information Frequent Requests: License and Registration List: Breeders. Updated 22 Sep 2008. APHIS. 15 Oct. 2008. <http://www.aphis.usda.gov/animal_welfare/efoia/downloads/reports/A_cert_holders.pdf>.

³²⁰ United States Department of Agriculture. Animal and Plant Health Inspection Service. Animal Welfare Electronic Freedom of Information Frequent Requests: License and Registration List: Dealers. Updated 22 September 2008. APHIS. 15 Oct. 2008. <http://www.aphis.usda.gov/animal_welfare/efoia/downloads/reports/B_cert_holders.pdf>.

³²¹ The breakdown by year is as follows: 2004: 134 dogs; 2005: 70 dogs; and 2006: 152 dogs.

³²² Covance Research Products sold 166 beagles and donated 46 beagles to MSU in 2005. In 2006, MSU purchased 72 beagles from Covance Research Products, and Covance Research Products donated 108 beagles to MSU.

³²³ Between 2005 and 2007, Covance Research Products sold 25 beagles and donated 70 beagles to University of Wisconsin, Madison for use in education at its medical and veterinary schools.

³²⁴ University of Cincinnati in Ohio bought 47 mixed breed and hound dogs from Covance Research Products between 2004 and 2006.

³²⁵ In 2006, three beagles were bought from Covance Research Products.

³²⁶ In 2005, six beagles were purchased from Covance Research Products.

³²⁷ From Nov 2005 through Apr 2007, 144 dogs were bought from Covance Research Products.

³²⁸ In 2006, 11 hound dogs were bought from Covance Research Products.

³²⁹ Covance order packing list, #62429. 8 Jul 2007.

³³⁰ USDA. APHIS Inspection Report. 3 Aug 2006.

³³¹ AWA regulations, 9 C.F.R. § 3.3(a), specify that the ambient temperature in dogs' sheltered housing facilities should not rise above 85 degrees Fahrenheit for longer than four consecutive hours.

registered research facility, has also been cited and fined for USDA violations recently.^{332,333}

Covance Research Products reported to USDA that it sold 240,867 animals from 2004-2006 and grossed an astounding amount of nearly \$50 million from those sales.³³⁴

• **Ridglan Farms, Inc. (Mount Horeb, Wisconsin)**

Ridglan Farms, Inc. is a USDA-licensed Class A dealer that breeds dogs for sale to research and educational institutions and operates a contract animal cremation service (through which it sends animals offsite to a crematorium).

Cited for dirty and dangerous housing conditions.

Animalearn found that one of the largest purchasers of dogs from Ridglan Farms is the University of Wisconsin, Madison, which bought 445 live beagles between 2005 and 2007. Oklahoma State University;³³⁵ Texas A&M University;³³⁶ University of Minnesota, St. Paul;³³⁷ and University of North Carolina, Chapel Hill³³⁸ also purchased live beagles from Ridglan.

Sold 11,404 animals from 2005-2007, earning more than \$7 million.

According to the USDA inspection reports we obtained, Ridglan was investigated following a complaint of overcrowded and unsanitary dog cages and the smell of burning animals. A USDA inspector visited the site and did not consider the complaint to be valid. He/she noted that there were 2,000 dogs on the premises at the time of inspection. In 2006, however, federal inspectors did document dirty and potentially dangerous animal housing conditions at Ridglan Farms, Inc. According to pedigree records obtained from USDA, Ridglan gives names primarily to the male dogs (sires) and assigns codes to the females (dams). Such male names include: Barney, Bingo, Fritz, Frekls, Kane, Killer, Twit, and Tramp.

Despite these dirty and dangerous housing conditions, from 2005 to 2007, Ridglan Farms, Inc. sold 11,404 animals and grossed an incredible \$7,028,665 in sales.

• **Harlan Sprague Dawley (Indianapolis, Indiana)**

Breeds and sells cats, dogs, ferrets, rabbits, rodents, and nonhuman primates.

Harlan Sprague Dawley is one of the world's largest companies that breeds and sells animals such as cats, dogs, ferrets, rabbits, rodents, and nonhuman primates to laboratories. It also conducts animal testing and clinical trials and sells diets created for animals in labs. Harlan is known for its large-scale breeding of various mice and rats (e.g. inbred, mutant, etc.), in particular the albino "Sprague-Dawley rat."

Transported cats and kittens over 1,000 miles by truck.

We found that several universities buy live cats and dogs from Harlan, including University of Cincinnati (Ohio);³³⁹ University of Connecticut, Storrs;³⁴⁰ University of Florida, Gainesville;³⁴¹ University of Minnesota, St. Paul;³⁴² University of Washington, Seattle;³⁴³ University of Wisconsin, Madison;³⁴⁴ and Colorado State University, Fort Collins.³⁴⁵

³³² According to USDA, APHIS Inspection Reports, Covance Laboratories Inc. was cited by APHIS Inspectors relating to damaged dog cages (4 May 2006), damaged dog and primate rooms (1 Sep 2004), and inadequate searches for alternatives to minimize pain and distress and justification of animal numbers (12 Apr 2006 and 6 Dec 2006).

³³³ Pfister, Bonnie. "Covance Pays Fine to Conclude USDA Investigation." *The Associated Press* 31 Mar 2006.

³³⁴ Information obtained from this dealer's USDA APHIS Class A Dealer License Renewal Applications for the years 2006-2008.

³³⁵ Between 2006-2007, 31 beagle puppies were purchased from Ridglan Farms.

³³⁶ In 2005, four beagles were bought from Ridglan Farms.

³³⁷ In 2006, 26 beagles were purchased from Ridglan Farms.

³³⁸ In 2004, eight dogs were bought from Ridglan Farms.

³³⁹ In 2005, 39 live cats were bought from Harlan.

³⁴⁰ In 2005 and 2006, 10 cats were bought from Harlan.

³⁴¹ In 2006, 10 kittens aged 10-12 weeks old were bought from Harlan.

³⁴² Between 2005 and 2007, it bought 51 female kittens—most of whom were only two to three months old.

³⁴³ In 2005, 2 dogs were purchased from Harlan.

³⁴⁴ Between 2005 and 2007, 188 cats were bought from Harlan.

³⁴⁵ Between 2005 and 2007, two cats were bought from Harlan.

Based upon animal sales records received through FOIA from various universities, all of the cats and kittens were transported to these schools by truck from Wisconsin to Colorado, Florida, Minnesota, and Ohio. Some of these destinations are over 1,000 miles apart. These are considerably long and stressful journeys for cats and kittens.^{346,347}

Harlan Sprague Dawley did not report the total number of animals sold but reported to the USDA income from animal sales totaling over \$300,000 from 2005-2007.³⁴⁸

Conclusion

Based upon our review of a number of Class A dealers, it is clear that these dealers enjoy significant profits from the breeding and sale of cats, dogs, and other animals. Some of these dealers play a major role in the industry of supplying animals for research and education yet have been cited for violations of basic animal welfare regulations. By incorporating humane and effective alternatives to the use of animals bred for education and research, which will be discussed in more detail in Section IV and Appendix B, universities will benefit by cutting both financial and ethical costs.

³⁴⁶ Meunier, LaVonne, D. "Selection, Acclimation, Training, and Preparation of Dogs for the Research Setting." *ILAR Journal* 47.4(2006):326-347.

³⁴⁷ Swallow, Jeremy, et al. "Guidance on the transport of laboratory animals: Report of the Transport Working Group established by the Laboratory Animal Science Association (LASA)." *Laboratory Animals* 39(2005):1-39.

³⁴⁸ Information obtained from this dealer's USDA APHIS Class A Dealer License Renewal Applications for the years 2006-2008.

SECTION IV: Eliminating the Harmful Use of Animals in Education

Studies show that alternatives are educationally effective and promote learning and compassion in students.

Many colleges and universities are recognizing students' interest in learning without harming animals and are changing their practices and policies.³⁴⁹ For colleges and universities that wish to eliminate the harmful use of animals in education, there are resources available to help identify suitable alternatives. Numerous studies have shown that alternatives are educationally effective and promote learning and compassion in students.³⁵⁰

Colleges and universities can also demonstrate their commitment to ending the harmful use of animals in education by working with students to pass "student choice policies" and "no random source animals policies."³⁵¹ (See Appendix B.3. and 4. on creating a Student Choice Policy, and Appendix B.5. on creating a No Random Source Animals Policy.) Student choice policies secure students the right to choose an alternative to using animals, while No random source animals policies prohibit the acquisition of dogs and cats from Class B dealers, thereby ensuring that the university does not support the cruelty associated with these sources (see Sec. III).

A. Alternatives

Innovations in technology have increased the efficacy of alternatives to terminal or harmful animal use (See Appendix B.1.). Comparative studies suggest that humane alternatives are superior or equal to methods involving the use of animals in terms of teaching efficacy, student learning, surgery skills, and surgery performance.^{352,353,354,355,356} In a meta-analysis of 17 studies, results associated with methods of instruction that did not use or harm animals were either superior or the same as results from the methods requiring harmful animal use.^{357,358,359} None of these studies indicated that the alternative to harmful animal use was inferior to the method that utilized animals.³⁶⁰ Markedly, even somewhat unsophisticated methods demonstrated effective results when compared to methods involving harmful or terminal use of animals.³⁶¹ These findings support widespread implementation of alternatives to harmful animal use in undergraduate, graduate, veterinary, and medical school classrooms.

Alternatives to harmful animal use not only meet practical teaching objectives, but also help retain students who would be interested in pursuing life science degrees, but are deterred because they do not want to dissect once-living animals or conduct harmful experiments on live animals (See Appendix B.1. for a comprehensive description of alternatives). It is often difficult, for example, for a student drawn towards veterinary medicine by his or her care and compassion for animals to have to participate in a terminal surgery,³⁶² especially when humane methods are available.³⁶³ Alternatives also help students understand that animal suffering is not to be taken lightly.

³⁴⁹ See *infra* pg. 35 (Student Choice Policies).

³⁵⁰ A comprehensive description of alternatives available to replace the use of animals in undergraduate, veterinary, and medical education is provided in Appendix B1.

³⁵¹ A template for establishing a student choice policy is provided in Appendix B3, and a model for an ideal student choice policy is provided in Appendix B4.

³⁵² Patronek, G.J.. "Tufts University School of Veterinary Medicine client donation program." *Alternatives in Veterinary Medical Education* 11(1999): 23.

³⁵³ The Humane Society of the United States. "Comparative Studies of Dissection and Other Animal Use." 25 Jan 2009. HSUS. 19 Mar 2009. <http://www.hsus.org/animals_in_research/animals_in_education/comparative_studies_of_dissection_and_other_animal_uses.html>.

³⁵⁴ VandeWoude, Sue. "Development of a Model Animal Welfare Act." *Journal of Veterinary Medical Education* 34.5 (2007): 600-604.

³⁵⁵ Carpenter, L.G., et al. "A comparison of surgical training with live anesthetized dogs and cadavers." *Veterinary Surgery* 20 (1991) 373-378.

³⁵⁶ Griffon, DJ, et al. "Evaluation of a hemostasis model for teaching ovariohysterectomy in veterinary surgery." *Veterinary Surgery* 29 (2000): 309-316.

³⁵⁷ Carpenter, L.G., et al. "A comparison of surgical training with live anesthetized dogs and cadavers." *Veterinary Surgery* 20 (1991): 373-378.

³⁵⁸ Samsel, R.W., et al. "Cardiovascular physiology teaching: Computer simulations vs. animal demonstrations." *American Journal of Physiology* 266 (1994): 36-46.

³⁵⁹ Guy, J.F. and A.J. Frisby. "Using interactive videodiscs to teach gross anatomy to undergraduates at the Ohio State University." *Academic Medicine* 67 (1992): 132-133.

³⁶⁰ Combining different alternative methods to replace a teaching exercise involving the use of animals has the potential to further increase their effectiveness.

³⁶¹ Many of the available reviewed studies are greater than 10 years old, including films and videotapes, likely representing worst-case scenarios. With virtual reality technology, alternatives would likely score considerably higher in formal comparisons.

³⁶² Martinsen, S., and Nick Jukes. "Towards a Humane Veterinary Education." *Journal of Veterinary Medical Education* 32 (2005): 4.

³⁶³ Association of Veterinarians for Animal Rights. "Comparisons of Alternatives Offered By Veterinary Schools." *Alternatives in Veterinary Medical Education*

There are many organizations and agencies that can assist college and university educators and administrators in locating effective alternatives to using dogs, cats, and other animals in order to teach.

1. The Animal Welfare Information Center

The USDA established The Animal Welfare Information Center (AWIC) to help research institutions comply with Animal Welfare Act (AWA) regulations. The AWA requires that Institutional Animal Care and Use Committees (IACUCs) receive information and documentation indicating that alternatives to procedures that may cause more than “momentary pain and distress to the animals have been considered and that activities do not duplicate previous experiments.”³⁶⁴ This requirement includes a thorough literature search for alternatives prior to initiating such procedures.³⁶⁵

AWIC provides assistance with searching for alternatives.

AWIC provides resources and information on peer reviewed studies to assist in locating viable alternatives; provides assistance with search terminology for conducting the most effective searches; and provides a list of viable alternatives to using animals in medical and veterinary education.³⁶⁶ AWIC also provides training workshops at various dates and locations for members of university IACUC committees, with the goal of helping them comply with federal regulations and policies governing animal welfare.³⁶⁷

2. Animalearn’s The Science Bank

Animalearn offers detailed solutions for undergraduate, medical, and veterinary education that would help colleges and universities to eliminate the harmful use of animals from their curriculum, without sacrificing educational quality (See Section B.1.).

Animalearn’s The Science Bank is the largest free loan program in the country for alternatives to animal use.

Many of the alternatives are available through Animalearn’s The Science Bank,³⁶⁸ the largest free loan program in the country, providing over 450 alternatives to dissection and vivisection. Innovative alternatives available through The Science Bank include CD-ROMs, DVDs, realistic models, and interactive mannequins, many of which are available in multiple quantities for entire classrooms.

Students who are proposing the option of using an alternative to their professors and college and university administrators can borrow alternatives from The Science Bank to present and demonstrate. Faculty or students can contact Animalearn at info@animalearn.org or visit www.TheScienceBank.org for a catalogue of free alternatives to animal use. Animalearn is available to help students and faculty select the most appropriate alternatives for their class requirements.

B. Student Choice Policies

One way for students to establish their right to choose an alternative to using animals in education is to establish a formal student choice policy at their college or university (See Appendix B.3. and 4. for information on creating a Student Choice Policy). A formal student choice policy is written, can be either university-wide or departmental, and can leave a legacy of humane education that benefits many students who follow.³⁶⁹

Winter 2008. AVAR. 23 Feb 2009. <http://avar.org/publications_newsletter.asp>.

³⁶⁴ Animal Welfare Information Center (AWIC). “Workshops.” United States Department of Agriculture. 7 Aug 2008. USDA. 19 Mar 2009. <http://awic.nal.usda.gov/nal_display/index.php?info_center=3&tax_level=1&tax_subject=188>.

³⁶⁵ *Id.*

³⁶⁶ Animal Welfare Information Center (AWIC). “Alternatives in Education.” United States Department of Agriculture. 7 Aug 2008. USDA. 19 Mar 2009. <http://awic.nal.usda.gov/nal_display/index.php?info_center=3&tax_level=2&tax_subject=183&level3_id=0&level4_id=0&level5_id=0&topic_id=1093&placement_default=0>.

³⁶⁷ Animal Welfare Information Center (AWIC). “Workshops.” United States Department of Agriculture. 7 Aug 2008. USDA. 19 Mar 2009. <http://awic.nal.usda.gov/nal_display/index.php?info_center=3&tax_level=1&tax>.

³⁶⁸ Animalearn.<www.animalearn.org>.

³⁶⁹ Ducceschi, L., Hart, L., and N. Green. “Guidelines for the development of student choice policies regarding dissection in colleges and universities: An ethnographic analysis of faculty and student concerns.” *Proceedings 6th World Congress on Alternatives & Animal Use in the Life Sciences*. AATEX Special Issue.

An informal, or unwritten, student choice policies, allows the use of an alternative if a student objects to using animals. However, this does not guarantee a student the right to say no to dissection or vivisection, leaving the option to use an alternative at the discretion of the faculty presiding over the course or department.³⁷⁰ Therefore, students who do not want to harm an animal while obtaining their education must go through the process of requesting or proposing the idea of an alternative to their professors.

Student choice policies give students the option of using alternatives.

Across the United States, ivy-league universities, public colleges and universities, technical colleges, liberal arts colleges, community colleges, and many others have instituted student choice policies,³⁷¹ but the majority of these are not formal student choice policies.

Animalearn receives many inquiries from college and university students who are interested in establishing a formal student choice policy at their school. Animalearn works with students to help them navigate the process of successfully establishing a policy that will allow students to choose an alternative to dissection and lab experiments.

Depending on the college or university, student choice policies can differ on how they address the issue of animal dissection or vivisection. Policies vary considerably in the courses, which they cover, the name of the policy, and the policy's content. Some student choice policies are easily located on a college, university, or department web site. Others are not as explicit and can be located on websites not affiliated with the university,³⁷² in university registration packets,³⁷³ or hidden within course descriptions.³⁷⁴

A few examples of college and university student choice policies are listed below (See Appendix B.4. for a sample of an ideal Student Choice Policy).

- **Bryn Mawr College Animal Use Policy**

<http://www.brynmawr.edu/biology/franklin/labpolicies.08.html>

- **Cornell University**

<http://www.bio.cornell.edu/advising/courses.html>

- **University of Illinois Urbana-Champaign Student Choice Policy**

<http://www.animalconcerns.org/external.html?www=http%3A//www.dissectionchoice.org&itemid=200212091302110.625615>

- **University of New Mexico³⁷⁵**

<http://www.interniche.org/consh/Lhepner.html>

- **Virginia Commonwealth University Non-Dissection Degree Paths Bill**

<http://ramsites.net/~kungae/>

The process of initiating such policies affects students, faculty, and administrators, and can be challenging. During the process of passing a policy, taking specific actions can streamline the process. Through research conducted

(2007): 273-276.

³⁷⁰ *Id.*

³⁷¹ Animalearn. "Colleges and Universities with Student Choice Policies". Undated. Animalearn. 23 Jan 2009<http://animalearn.org/studentcenter_collegeuniversity04.php>.

³⁷² University of New Mexico's policy statement is available in testimony written by a university alumnus. Undated. Interniche. 13 Feb 2009. <<http://www.interniche.org/consh/Lhepner.html>>.

³⁷³ Sarah Lawrence College's Policy on Student Choice is located in the student registration packet.

³⁷⁴ Cornell University. Intro Courses. 13 Feb 2009.

³⁷⁵ Hepner, Lisa. "Winning Alternatives to Dissection at the University of New Mexico." Undated. Interniche. 13 Feb 2009. <<http://www.interniche.org/consh/Lhepner.html>>.

in 2007 with six U.S. colleges and universities³⁷⁶ that are in the process of passing, or that have already passed, student choice policies, Animalearn and Lynette Hart, Ph.D., of University of California at Davis, developed a five-step template for successfully passing a student choice initiative at a college or university (See Appendix B.3. for the template and Appendix B.4. for a sample of an ideal Student Choice Policy).

C. No Random Source Animals Policies

In addition to helping to pass student choice policies, students can help promote other types of policies that can help eliminate the harmful use of animals in education at their schools. One example is a No Random Source Class B Dealer Policy, which is a university-wide policy that explicitly prohibits the acquisition of animals from these types of Class B dealers. Such policies promote a willingness on the part of a university to avoid these dealers, thus not contributing to the inhumane treatment that animals often encounter when acquired, housed, and transported.

No random source animals policies prohibit the acquisition of animals from Class B dealers and pounds.

Iowa State University (ISU) is an example of a university that has instituted a No Random Source Class B Dealer policy. The stated purpose of the policy is to assure the public that no stolen pets are used in research and education.³⁷⁷ Other universities could easily follow ISU's lead and institute similar policies, avoiding the ethical dilemma that purchasing animals from Class B dealers presents (See Appendix B.5. to view a sample, No Random Source Animals Policy).

To promote humane treatment to both companion and other animals, it is critical that universities enacting such a policy seek out humane sources of animals, and do not replace the animals from random source Class B dealers with those from other potentially inhumane sources, including Class A dealers and animals obtained through pound seizure.

³⁷⁶ Bryn Mawr College; Hofstra University; Sarah Lawrence College; University of Illinois Champaign- Urbana; Virginia Commonwealth University; and Worcester Polytechnic Institute.

³⁷⁷ Purchase of Dogs and Cats from USDA Class B Licensees. Institutional Animal Care and Use Committee (IACUC)- University Policies. Undated. Iowa State University. 20 Feb 2009. <<http://www.compliance.iastate.edu/ComplianceWeb/coacUniversityLaw.aspx.html#teaching>>.

CONCLUSION

Companion animals hold a special place for a significant portion of the American public, sharing our homes and trusting us to look after their interests. Animalearn's investigation, however, uncovered shocking findings that should disturb the animal lover and tax-payer alike.

Public colleges and universities are partially funded by tax-payer money,³⁷⁸ and making expenditures to purchase dogs and cats, many of whom were once someones' pets.³⁷⁹ These former companions are being used to teach undergraduate biology, veterinary medicine, and human medicine. The dogs and cats are coming from unethical sources, many with a history of violations and inhumane treatment. Making matters worse, the structures put in place at educational institutions, as required by law, to prevent cruel and unnecessary use of animals are failing to provide effective oversight.

Fortunately, numerous humane, effective, and cost-efficient alternatives exist that can replace the harmful use of animals in education entirely. Concerned students, faculty, administrators, and members of the public have a variety of options available to ensure that no animal is harmed for undergraduate, veterinary, or medical education. Indeed, universities are increasingly taking steps to eliminate animal use from their curriculum, but much more needs to be done.

Our report provides the most current information about the acquisition and use of dogs and cats by publicly funded higher education institutions, as well as comprehensive resources for implementing alternatives to animals use. Based on our investigation, we present the following findings and recommendations:

1. Schools are engaging in harmful use of dogs and cats for teaching purposes.

Findings: Schools are harming and killing dogs and cats to fulfill educational objectives that can be met by alternatives. We discovered teaching exercises, such as terminal surgery labs at veterinary and medical schools in which dogs are killed following the procedure; clinical skills training labs for veterinary students, which involve euthanizing live dogs or cats in order to teach skills to students; and animal dissection, which involves using the cadavers of cats, dogs, and other animals to teach anatomy and physiology. Many animals are killed specifically for students to use, even though there are viable alternatives available that are being used effectively by other schools (See Appendix B).

Of 92 university records reviewed from 2005-2007 regarding the use of dogs and cats for teaching and training purposes:

- 52% are using live or dead dogs and cats.
- 26% are using live dogs and cats.

Of 150 university biology departments in a separate survey conducted in 2008 (20% response rate):

- 63% are using dead cats to teach anatomy and physiology.

Recommendations: Animalearn recommends that these schools replace the harmful use of animals with alternatives. This can be achieved by:

- Developing student choice policies to allow alternative use. (We provide a guide to implementing student choice policies in Appendix B.3., and a sample of an ideal student choice policy in Appendix B.4.)
- Creating curricula that identify alternatives as the default procedures and include therapeutic uses of animals (e.g. shelter medicine programs) and use of client-donated cadavers for dissection. (We provide a comprehensive description of the latest alternatives available for life sciences, veterinary, and medical education in Appendix B.1.)
- Broadening development, funding, and distribution of alternatives.
- Providing educators with training opportunities in identifying and using appropriate and effective alternatives.

³⁷⁸ State colleges and university operating budgets indicate a sizeable percentage comes from public financing.

³⁷⁹ LaVonne, Meunier D. "Selection, Acclimation, Training, and Preparation of Dogs for the Research Setting." ILAR Journal 47(2006): 326-347.

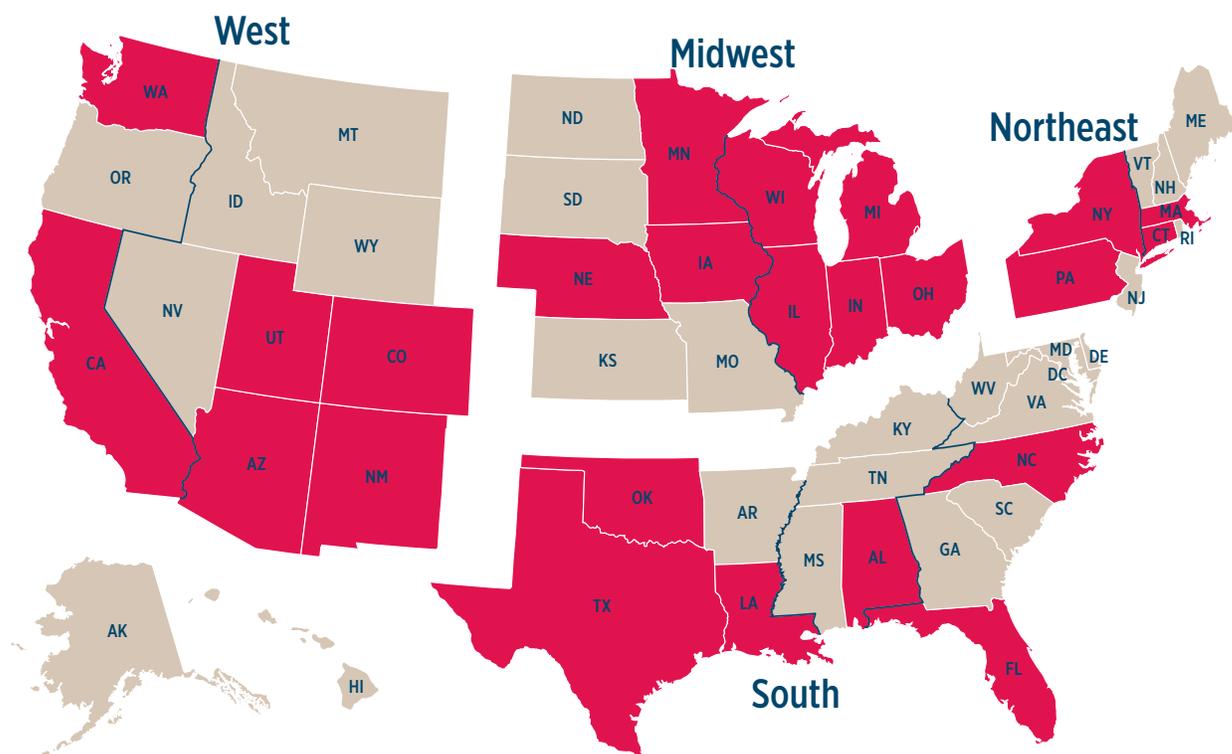
2. Schools are acquiring dogs and cats from inhumane sources.

Findings: Schools are obtaining animals from both Class A and B dealers (See Appendix A. Tables 1. and 2.). Many of these dealers have consistent AWA violations, including falsifying animal records and providing inadequate animal care resulting in routine animal suffering and distress. In addition, schools are going directly to animal pounds to acquire animals, a process commonly called “pound seizure.”

Recommendations: Animalearn recommends that random source animals not be used in education. This includes a prohibition on acquiring animals from Class B random source dealers, animal shelters/pounds, or international pounds. This random source animal prohibition should be part of federal law and state law, as well as included in institutional policies. USDA should exercise its authority by revoking and refusing to renew licenses for Class B random source dealers that have consistently violated the law. Rather than acquiring animals from random sources, Animalearn recommends that any animals used for educational purposes be ethically-sourced and used in procedures beneficial or therapeutic to the animal. In addition, Animalearn recommends that animals should not be bred for educational use because it is wasteful and promotes a disregard for life instead of fostering compassion.

APPENDIX A: Figures and Tables

Figure 1. Map of States From Which Animal Use Records Were Obtained



■ Highlighted states contain public colleges and universities where records were obtained.

Table 1. Sources of Live Dogs and Cats Used for Higher Education, 2005-2007

College/University	Class A Dealer	Class B Dealer	Pound Seizure ¹	Other Sources ²
Auburn University				X
Colorado State University, Fort Collins	X			
Iowa State University			X ³	X
Michigan State University, East Lansing	X	X	X	X
Oakland University, Rochester	X			
Ohio State University		X		
Oklahoma State University	X	X		
Purdue University		X		X
Texas A&M University, College Station	X		X	X
University Of California, Davis				X
University of California, Santa Barbara	X			
University of Cincinnati	X			
University of Connecticut, Storrs	X			
University of Florida, Gainesville	X	X		
University of Georgia, Athens		X	X	
University of Illinois, Chicago		X		
University of Michigan, Ann Arbor	X	X		
University of Minnesota, St. Paul	X	X	X ³	
University of North Carolina, Chapel Hill	X			
University of Oklahoma, Health Sciences Center		X		
University of Texas, Dallas ⁴	X			X
University of Texas, Southwest Medical Center	X			X
University of Washington, Seattle	X			X
University of Wisconsin, Madison	X			X

¹ Pound seizure column includes live animals only.

² Other sources include other university departments, other colleges and universities, and donations.

³ These animals may have been used for beneficial spay/neuter surgeries and then returned to shelter.

⁴ Stopped using cats in 2008. No dogs used.

Table 2. Class B Random Source Dealers and Sales of Live Animals

Dealer	Location	License Number	Total Live Animals Sold ¹	Gross Sales Income ¹
C&C Kennels ²	Wewoka, OK	Under Suspension ³	2,395	\$280,000
Cheri-Hill Kennel & Supply	Stanwood, MI	34-B-0178	1,056	\$77,800
Chestnut Grove Kennels, Inc	Shippensburg, PA	23-B-0174	975	\$420,008
Hodgins Kennels, Inc	Howell, MI	34-B-0002	1,882	\$742,148
Kenneth Schroeder ²	Wells, MN	41-B-0017	1,484	\$190,625
LBL Kennels	Reelsville, IN	32-B-0045	3,055	\$738,000
Mountain Top Kennels	Wallingford, KY	61-B-0124	2,342	\$169,225
Robert Perry	Mt. Sterling, OH	31-B-0104	938	\$241,314
R&R Research	Howard City, MI	34-B-0001	1,885	\$558,486
Triple C Farms	St. Joseph, IL	No longer licensed	606	\$210,148
Whale Branch Animal Services, Inc	Seabrook, SC	56-B-0109	N/A ⁴	N/A ⁴
Total			16,588	\$3,627,754

Source for sales information: USDA APHIS Class B License Renewal Applications (for random source dealers featured in this report). Previous year's sales figures are included in each application.

¹ Includes all animals sold for education, research, and testing from 2005-2007 (2004-2006 for C&C Kennels and Kenneth Schroeder).

² Animal sales are for 2004-2006.

³ As of August 2008, under 5 year suspension.

⁴ Data not obtained.

⁵ USDA Class B dealer license expired on November 3, 2008.

Table 3. Biological Supply Companies and Sales of Dog and Cat Cadavers

Company ¹	Location	Price Range for Cat Cadaver	Price Range for Dog Cadaver
Carolina Biological Supply	Burlington, NC	\$32.00-\$81.75	\$78.25-\$95.00
Connecticut Valley Biological Supply Company	Southampton, MA	\$49.50-\$55.00	No dog cadavers
Delta Biologicals (Ranaco Corporation)	Tucson, AZ	\$34.00-\$52.00	No dog cadavers
Fisher Science Education (Fisher Scientific)	Hanover Park, IL	\$40.80-\$84.80	No dog cadavers
Nasco (The Aristotle Corporation)	Modesto, CA & Fort Atkinson, WI	\$41.00-\$72.25	No dog cadavers
Nebraska Scientific (Cyrgus Company, Inc.)	Omaha, NE	\$42.38-\$46.33	No dog cadavers
Sargeant's Wholesale Biological	Bakersfield, CA	Information unavailable	\$84.95-\$145.00 ²
Sargent-Welch (science education division of VWR)	Buffalo, NY	\$38.45-\$79.95	No dog cadavers
Science Kit & Boreal Laboratories	Tonawanda, NY	\$39.95-\$75.95	No dog cadavers
The Bio Corporation	Alexandria, MN	\$24.50-\$47.00	No dog cadavers
Ward's Natural Science	Rochester, NY	\$34.95-\$95.95	No dog cadavers

Source for price information: Company websites, personal communication, and university documents.

¹ List does not include all biological supply companies.

² May not be complete range. Information obtained from university records.

APPENDIX B: Student/Educator Tool Kit
Solutions to Replacing the Use of Dogs and Cats in Education

1. Comprehensive List of Alternatives to the Harmful Use of Dogs and Cats in Undergraduate, Veterinary, and Medical Education

As described in this report, Animalearn discovered that 52% of colleges and universities are using live or dead dogs and/or cats, and 26% of colleges and universities are using live dogs or cats for teaching or training purposes. Animalearn also discovered that 63% of biology departments responding to a separate survey are using cat cadavers to teach life science.¹

The harmful use of animals is unnecessary, as there are a wide number of innovative alternatives available to replace dissection and live animal experiments in education. These rely on advanced computer technologies, mannequins, and models, as well as actual human and animal cadavers obtained from ethical sources, and can be used to teach anatomy, simulate biological functions, and practice clinical and surgical skills. Simulations can be enhanced with virtual reality components that allow 3-D interaction or haptic feedback (touch or tactile sensations such as vibrations or resistance).

Alternatives that do not involve the harmful use of animals allow students to perform tasks at their own pace, repeating if necessary until they master the material or the techniques being taught.² These alternatives also often cost less over the long-term than using animals. Thus, these alternatives are humane, educationally effective, and economical, saving countless animal lives while also providing students with high quality experiences in the life sciences.

Many of these alternatives can be borrowed for free from Animalearn's The Science Bank.

A. Alternatives to Dissection and Live Animal Experimentation in Life Science Education

Described below are several of the alternatives available for use in undergraduate, veterinary, and medical education.

1. Undergraduate

As documented in Section II, cats, and occasionally dogs, continue to be used for dissection in undergraduate biology classrooms. These animals are used in comparative anatomy classes, or as surrogates for humans in human anatomy and physiology classes.³ There are, however, alternatives to using dogs and cats in undergraduate education.

Software, virtual dissections, and models can be used to teach both animal and human anatomy and physiology, eliminating animal use entirely. Indeed, virtual reality simulations, which are interactive and engaging,⁴ are being implemented in many undergraduate life science classes by faculty who are looking to enhance or improve their classroom teaching.⁵

Faculty at City University of New York's New York City College of Technology, for example, are using virtual reality experiments to engage biology students in hybrid lab courses for General Biology I and II and Anatomy and Physiology I and II. Interactive tools developed for these virtual reality courses are touted as giving the "YouTube generation" an alternative to traditional labs.⁶ Such lab simulations can replace wet labs, and professors indicate that they find the hybrid courses to be superior to traditional classroom and lab situations.⁷ Additionally, at University of Wisconsin-LaCrosse, faculty from the biology department have created "ZooLab: A Website for

¹ See Conclusion of this report.

² Jukes N. and M. Chiuiia, eds. *From Guinea Pig to Computer Mouse: Alternative Methods for a Progressive Humane Education*, 2nd ed. Leicester, UK.: Inter-NICHE, 2003.

³ Hart, Lynette A., Mary W. Wood, and Benjamin J. Hart. *Why Dissection?* Westport, CT.: Greenwood Press, 2008.

⁴ Moore, Janet C. "Distance Education: Principles and Practices, Maintaining Quality in Online Education". *Journal of Veterinary Medical Education*. (2007). Vol. 34, Issue 3, 243-250.

⁵ *Id.*

⁶ "City Tech's hybrid bio courses resonate with 'YouTube' generation". *Targeted News Service*. 14 Jan 2008.

⁷ *Id.*

Animal Biology,” to provide a virtual laboratory experience for students.⁸

In addition to software simulations, human cadavers can also be used for dissection (instead of animal cadavers) through the establishment of willed body programs, an opportunity that was previously only available to medical students. In cases where animal cadavers are still desired, these can be ethically sourced through a body donation program rather than purchased from biological supply companies or pounds.

a. Software for Animal Dissection

In courses where it is important to teach animal anatomy or physiology, there are several computer programs that can be used to simulate animal dissection.

• Neotek’s Cat Dissection Laboratory CD-ROM

Neotek’s Cat Dissection Laboratory CD-ROM utilizes 3-dimensional virtual reality technology to offer 80 dissections, including an examination of the cat’s external anatomy, skeleton, muscles, internal cavities, and the nervous, circulatory, respiratory, digestive, and the male and female reproductive systems; and offers a tutorial, lecture, and quiz mode.⁹

• ITG Catlab

Another notable program is ITG Catlab, which offers a complete multimedia dissection of the cat anatomy, available on CD or through online subscription. The program includes over 300 laboratory-quality images, tutorial modules for the skeleton, muscles, digestive system, urogenital system, circulatory system and heart, and nervous system of the cat. Each module contains a self-assessment exam and is recommended for medical, dental, physical, and occupational therapy students.¹⁰

• DryLab Fetal Pig

Also available is the DryLab Suite of dissections, which includes dissections of the cat, fetal pig, rat, perch, frog, earthworm, and other animals. Nancy L. Harrison, MD, a pathologist at Scripps Memorial Hospital in Chula Vista, California, reviewed the wide variety of simulations and indicated that DryLab Fetal Pig¹¹ is one of her favorites because the specimens look identical in quality to tissue with which she works on a daily basis.¹²

b. Software for Human Anatomy and Physiology

When the aim of the undergraduate biology class is to teach human anatomy and physiology, improvements in technology and in medical tissue preparation make it possible to use human exhibits at little or no cost.¹³ Through the use of simulations and human cadavers, dogs and cats do not need to be used as surrogates to teach human anatomy any longer.

• VH Dissector

One of the many human anatomy alternatives available is the VH Dissector CD-ROM, developed by scientists at the University of Colorado (CU). Combining virtual reality technology with cadaver dissection, VH Dissector features a virtual body containing over 2,000 anatomic structures that replicate actual cadaver dissection.¹⁴

⁸ Gillis, R. and Roger J. Haro. “ZooLab: A Website For Animal Biology.” Department of Biology. University of Wisconsin-LaCrosse. 9 Mar 2009<<http://bioweb.uwlax.edu/zoolab/welcome.htm>>.

⁹ Neotek. Cat Dissection library CD-ROM. 20 September 2008. <<http://www.neotek.com>>. Available on loan from The Science Bank. <https://ssl.perfora.net/animalearn.org/view_sciencebank.php>.

¹⁰ Interactive Technology Group (ITG). Cat Lab CD-ROM. 20 Sep 2008<http://www.itgworld.com/catlabonline/_index.html>. Available on loan from The Science Bank, at <https://ssl.perfora.net/animalearn.org/view_sciencebank.php>.

¹¹ Duncan Software. DryLab Suite. 26 Aug 2008<<http://www.duncansoftware.com/dsmain.htm>>. Available on loan from The Science Bank. https://ssl.perfora.net/animalearn.org/view_sciencebank.php.

¹² Harrison, Nancy L. Review of Alternatives at NSTA Convention. Anaheim, CA. 8 April 2006.

¹³ *Id.*

¹⁴ Touch of Life Technologies. VH Dissector. 5 Sep 2008. <http://www.toltech.net/products/vh_dissector/index.htm>. Available on loan from The Science Bank. <https://ssl.perfora.net/animalearn.org/view_sciencebank.php>.

- **Other Human Anatomy Programs**

Other notable human anatomy programs include the Complete Human Anatomy Series on DVD,¹⁵ A.D.A.M. Interactive Anatomy,¹⁶ and Anatomy Revealed: The Face CD-ROM, as well as online human anatomy websites such as the National Library of Medicine's Visible Human Project, also based at CU.¹⁷

- c. Models**

Realistic models can be used in place of dogs and cats to teach anatomy and physiology, and are often used in conjunction with computer simulation to offer students a multidimensional learning experience.

- **The Pregnant Cat Model**

The Pregnant Cat Model¹⁸ is just one example of a realistic dissection model, featuring over 100 individual anatomical details of the cat.

- **Anatomical Animal Models and Bone Clones**

Anatomical Animal Models, offered by Rescue Critters Company, feature synthetic dog and cat skeletons, as well as canine knee, hip, shoulder, jaw, ear, and skin models. Rescue Critters has also developed Bone Clones, which are models of skulls from the common house cat and several dog breeds. All of the Rescue Critters products are made from artificial materials.¹⁹

- d. Willed Body Donation Programs/Educational Memorial Programs**

Once only available to medical students, now undergraduate anatomy classrooms are using human cadavers²⁰ to teach human anatomy and physiology, allowing them to forgo using animal cadavers as surrogates.²¹ Colleges and universities can establish willed body donation programs, a low-cost and engaging alternative to using dogs and cats.²² This can be accomplished by building relationships with local hospitals and medical schools, and by purchasing a freezer. University of California at Davis, and California State University- San Bernardino are among several universities in the United States offering this opportunity to undergraduates.

Similarly, colleges and universities are also creating educational memorial programs (EMPs) to obtain ethically sourced animal cadavers [See Attachment F1]. An animal cadaver is considered ethically sourced if the animal is euthanized or dies naturally due to natural causes, illness, or injury. However, an animal cadaver purchased or obtained because of "companion animal overpopulation" from a pound, for example, is not considered an ethically sourced cadaver.

Thus, instead of purchasing animal cadavers from Class A dealers and Class B dealers, including biological supply companies, undergraduate anatomy and physiology programs can build relationships with veterinary schools, veterinary hospitals, or clinics to obtain ethically sourced animal cadavers through EMPs. University of Wisconsin – Stevens Point is an example of a university that has used ethically sourced animal cadavers to provide learning

¹⁵ Primal Pictures. 3D Human Anatomy Medical Software. 7 Sep 2008. <<http://www.primalpictures.com/Home.aspx>>.

¹⁶ A.D.A.M. Inc. Interactive Anatomy. 5 Sep 2008. <http://www.adam.com/Our_Products/School_and_Instruction/index.html>. Available on loan from The Science Bank. <https://ssl.perfora.net/animalearn.org/view_sciencebank.php>.

¹⁷ Rutmanis, Renada. "Anatomy Web Sites Bring Cadavers to Life." 1 Sep 1999. The Daily Californian. 10 Sep 2008. <http://www.dailycal.org/article/163/anatomy_web_sites_bring_cadavers_to_life>.

¹⁸ Ward's Natural Science. Pregnant Cat Model. 5 Nov 2008. <<http://wardsci.com/product.asp?pn=IG0013682>>. Available on loan from The Science Bank. <https://ssl.perfora.net/animalearn.org/view_sciencebank.php>.

¹⁹ Rescue Critters! 5 Nov. 2008 <<http://www.rescuecritters.com/p26A.html>>.

²⁰ Cadavers and specimens often include parts of hands and feet, legs, and arms, and various organ systems.

²¹ The trend toward using human cadavers from willed body programs is even moving into pre-college education. At various high schools nationwide, and through extra-curricular program, students are not relegated to dissecting companion animals and are instead offered this innovative educational experience. Dr. Hubbard, an associate professor of biological sciences at Northern Illinois University, established the High School Short Course in Anatomy in 2002 after being inspired by a former graduate student who went to teach at a school where the curriculum included cat dissection. Voigt, Emily. "Teenagers, Scalpels and Real Cadavers." *The New York Times*. 22 Jan. 2008. F6.

²² Hart, Lynette A., Mary W. Wood, and Benjamin J. Hart. *Why Dissection?* Westport, CT: Greenwood Press, 2008.

tools for undergraduate biology students.

2. Veterinary Education

Animal cadavers are used in veterinary education to teach anatomy and physiology, and live animals are used in harmful or terminal labs to teach clinical skills, procedures, and surgeries. However, as noted by Lara Rasmussen, DVM,²³ former Director of Surgery and Clinical Skills at Western University of Health Sciences' College of Veterinary Medicine, "A live animal is not the best teaching tool. It's so complex. It's like taking a flying novice and putting them in the cockpit and expecting them to fly a plane."²⁴

A wide range of simulators, from software to interactive manikins, are available for students to gain familiarity and confidence with performing a variety of procedures. Students can also participate in shelter medicine programs, in which they perform procedures that benefit their animal patients (e.g., spays and neuters), rather than participating in terminal labs in which the animals are euthanized. In addition, educational memorial programs (EMPs) can be established to provide an ethical source of animal cadavers, instead of supporting the cruelty associated with purchasing cadavers from biological supply companies and shelters (ref. Sec. 3).

With these kinds of alternatives available, the harmful and terminal use of animals in veterinary medical education can be completely eliminated without sacrificing quality. As a result, many veterinary schools are phasing out the harmful use of animals.

a. Software for Anatomy, Physiology, and Basic Surgical Skills

Interactive software programs are being used in veterinary schools to teach anatomy, physiology, disease, and diagnosis.

• Canine Osteology

The Canine Osteology CD,²⁵ developed at University of California – Davis (UC Davis), is an interactive program that gives veterinary students the opportunity to view full color images of the canine skeleton and includes a list of structures present in each image.²⁶

• The Virtual Heart

Also developed at UC Davis, The Virtual Heart CD²⁷ is a computer program that combines realistic imagery with interactive 3-D control of dissected and non-dissected hearts. It allows users to view the heart from many angles and to retrieve information about any visible structure. Additional features include digital video of conventional and Doppler ultrasonic scans; audio of both normal and abnormal heart sounds; views of cardiac pathologies; cardiac cycle animation; waveform tracings; microscopic images of cardiac tissues; radiographs; and an annotated EKG.²⁸ UC Davis also developed another learning tool featuring web-based case studies in small animal cardiovascular medicine utilizing clinical cases of dogs and cats.²⁹

• Virtual Canine Anatomy

An interactive multimedia program created to teach anatomy to veterinary students is the Virtual Canine Anatomy: The Head CD-ROM, developed at Colorado State University - Fort Collins (CSU). Used by students at CSU, in addition to other veterinary students worldwide, the program provides an interactive interface allowing for hybrid, self-paced, individualized learning. Research suggests this program is an effective tool to enhance the study of

²³ Rasmussen was the brainchild behind Rescue Critters' Female K-9 Urinary Catheter Training Mannikin.

²⁴ Mcnamara, Mary. "Manikin is a dog's best friend". 2003 April 15. [Los Angeles Times](http://articles.latimes.com/2003/apr/15/entertainment/et-mary15). 30 Jan 2009. <<http://articles.latimes.com/2003/apr/15/entertainment/et-mary15>>.

²⁵ Can also be used in undergraduate life science courses to replace dog cadaver use.

²⁶ Canine Osteology Demo. UCDavis. 26 Sep 2008. <<http://www.vetmed.ucdavis.edu/HTMLfolder/demos/canineosteodemo.html>>.

²⁷ Can also be used in undergraduate life science courses.

²⁸ Animalearn. The Virtual Heart. https://ssl.perfora.net/animalearn.org/view_sciencebank_item.php?id=120.

²⁹ "Case Studies in Small Animal Cardiovascular Medicine." School of Veterinary Medicine. University of California, Davis. 5 Nov 2008. <<http://www.vmeth.ucdavis.edu/cardio/cases/cases.htm>>.

anatomy.³⁰

- **CLIVE**

Veterinary schools in United Kingdom have developed a variety of CDs and DVDs through their Computer-aided Learning in Veterinary Education (CLIVE) consortium.³¹ Examples include Cases in Clinical Neurology (Dogs and Cats);³² Diagnostic Procedures in Canine and Feline Dermatology;³³ Normal Canine Retina;³⁴ The Canine Abdomen,³⁵ and many others.

- **Surgery Videos**

Various surgery videos demonstrating technique are available on the College of Veterinary Medicine's website at Michigan State University. Topics include spay/neuter, anesthesia orientation, aseptic technique, suture patterns, instrument handling, and many others.³⁶

b. Models and Specimens for Anatomy

Realistic models and ethically-sourced specimens depicting an animal's internal structure are other alternatives that can be used as part of an anatomy curriculum in veterinary medical education.

- **Veterinary Models by GPI**

GPI offers canine models for the veterinary student, available in "bone-like" material for the elbow, knee, shoulder, ear, pelvis, jaw, heart, and five-piece vertebrae.³⁷ In addition, the company offers a feline jaw model.³⁸

- **Ethically-Sourced Plastinated Specimens**

Plastinated anatomical medical specimens³⁹ are often produced from cadavers purchased from biological supply companies, and are not often ethically sourced (ref. Sec. 3). There are, however, enterprises, such as QV Medical Products, LLC, that offer plastinated specimens from ethically sourced dogs and cats, including canine hip joints, canine and feline hearts, canine pelvis, etc.⁴⁰ (The company does, however, acknowledge that their plastinated specimen casts and skeletons of species other than dogs are not produced from ethically sourced cadavers.)

Educational memorial programs (EMPs) are another humane alternative, allowing veterinary schools the ability to produce their own plastinated specimens from ethically-sourced cadavers.

c. Manikins and Skills-Based Simulators

Students can practice skills and techniques on models and manikins before working with live animals. Manikins, which are more interactive than models, can facilitate training in animal handling, blood sampling, intubation, thoracentesis, and CPR techniques. Through the use of simulators, technically demanding procedures, procedures involving stress or harm, and critical care cases can be mastered by students without the use of live animals.⁴¹

- **Canine Head Model**

³⁰ Linton, A., Schoenfeld-Tacher, R., Whalen, R. Developing and Implementing an Assessment Method to Evaluate a Virtual Canine Anatomy Program. *JVME* 2005.

³¹ Computer-Aided Learning in Veterinary Education (CLIVE). 11 Mar 2009. <<http://www.clive.ed.ac.uk/>>.

³² Computer-Aided Learning in Veterinary Education (CLIVE). "Cases in Clinical Neurology (Dogs and Cats)." 11 March 2009. <<http://www.clive.ed.ac.uk/clivedisc.asp?id=Ncases>>.

³³ Computer-Aided Learning in Veterinary Education (CLIVE). "Diagnostic Procedures in Canine and Feline Dermatology." 11 March 2009. <http://www.clive.ed.ac.uk/clivedisc.asp?id=diagderm>.

³⁴ Computer-Aided Learning in Veterinary Education (CLIVE). "Normal Canine Retina." 11 March 2009 <<http://www.clive.ed.ac.uk/clivedisc.asp?id=retina>>.

³⁵ Computer-Aided Learning in Veterinary Education (CLIVE). "The Canine Abdomen." 11 March 2009 <<http://www.clive.ed.ac.uk/clivedisc.asp?id=172>>.

³⁶ "VM 557 Junior Surgery Videos". College of Veterinary Medicine. Michigan State University. 9 March 2009 <<http://old.cvm.msu.edu/courses/vm557/surgery/index.html>>.

³⁷ GPI. "Veterinary Models by GPI." Kappa Medical, Inc. 9 March 2009. http://www.kappamedical.com/veterinary_models_by_gpi.htm.

³⁸ Id.

³⁹ Specimens preserved for long-term use

⁴⁰ AVAR. "Company Uses Ethical Source Cadavers to Create Plastinated Specimens for Anatomy Training." *Alternatives in Veterinary Medical Education* 36. (2008): 4.

⁴¹ Jukes N. and M. Chiuia, eds. *From Guinea Pig to Computer Mouse: Alternative Methods for a Progressive Humane Education*, 2nd ed. Leicester, UK: InterNICHE, 2003.

The Canine Head Model, developed at UC Davis, is a vascular access training model.⁴² The Canine Head Model consists of a sculpted mandrel containing channels for a simulated jugular vein covered with moveable latex “skin.” While offering students visual and tactile capabilities, these models allow students to learn how to give injections, place catheters, and draw blood, giving them increased confidence before treating a live animal.⁴³

• SimPooch

SimPooch, developed at Colorado State University (CSU), is a three-dimensional canine head prototype, created for the purpose of acupuncture education.⁴⁴ SimPooch is a canine model with haptic capability (which provides tactile feedback), allowing student acupuncturists to practice their technique without using live animals, and without causing any pain or distress. The model also provides assessment and feedback for both the student and teacher.⁴⁵

• Hollow Organ Surgical Simulator and Skin/Suture Pattern Simulator

Dr. Daniel Smeak, Professor of Surgery at Colorado State University College of Veterinary Medicine, created surgical models such as the Hollow Organ Surgical Simulator and the Skin/Suture Pattern Simulator to allow students to refine their hand/eye motor skills, which are required to perform surgery.⁴⁶ The Hollow Organ Simulator is a collapsible, hollow-laminated mold of a canine stomach (when viewed through a ventral midline abdominal approach). The Skin/Suture Pattern Simulator imitates the suturing qualities of dermal tissue and consists of a flat laminated urethane-polymer mold. It is used by several universities, including Colorado State University, Michigan State University, and Western University of Health Sciences.⁴⁷

• Skills-Based Simulators

Simulators modeled on Universal Skills-Based Learning Theory focus upon building and refining skills important to students of veterinary medicine, such as psychomotor, perceptual, behavioral, cognitive, and problem-solving. These simulators allow students to practice and refine such skills in an isolated manner, without harming an animal.⁴⁸ An example is the “Don’t Over Do it” universal skills training device.^{49,50}

• Critical Care Jerry and Critical Care Fluffy

Critical Care Jerry and Critical Care Fluffy are two of Rescue Critters’ training skills manikins.⁵¹ Rescue Critters developed their brand of “Mannikins” after realizing that there was a lack of resources available to train people on companion animal first aid skills, and have “subsequently embraced the Animal Welfare Act’s call to ‘refine, reduce, and replace’ live animals in veterinary training as part of their official mandate.”⁵²

Critical Care Fluffy is a life-size feline manikin, with a realistic airway and representations of the trachea, esophagus, epiglottis, tongue, articulated jaw, and working lungs, as well as an artificial pulse. Fluffy can be used in CPR and anesthesia training for procedures such as mouth-to-snout rescue breathing, endotracheal tube placement, manual ventilation, and chest compressions.⁵³ She can also be used to teach cat restraint, bandaging,

⁴² UC Davis also has a Canine Foreleg Model available.

⁴³ UC Davis School of Veterinary Medicine. Vascular Training Models. 15 Oct. 2008 <http://www.vetmed.ucdavis.edu/Academic_programs/vatm.html>.

⁴⁴ Colorado State University. College of Engineering News. “SimPooch: An Alternative to Animal Use in Veterinary Curriculum.” College of Engineering News. Colorado State. 26 Nov. 2007.

⁴⁵ British Veterinary Association. “Acupuncture Training with SimPooch”. Vets.TV. 9 Feb 2009. <<http://vets.tv/video.php?vid=60&cid=>>>.

⁴⁶ Smeak, Daniel. “Teaching Surgery to the Veterinary Novice: The Ohio State University Experience.” *JVME* 34(5) 2007 AAVMC 620-627. 34.5 (207): 620-627.

⁴⁷ In 2006, in recognition of Dr. Smeak’s efforts in developing alternatives to the traditional use of animal in veterinary surgery instruction, he received the William and Eleanor Cave Award from the Alternatives Research & Development Foundation at the American Association of Veterinary Medical Colleges Symposium on Education.

⁴⁸ AVAR. “Don’t Do It Over Learning Tool and Universal Skills Based Learning.”. *Alternatives in Veterinary Medical Education* 31 (Spring 2006) 5.

⁴⁹ Designed by Lara Rasmussen, DVM and Ben Kitchen, DVM,

⁵⁰ AVAR. “Don’t Do It Over Learning Tool and Universal Skills Based Learning.”. *Alternatives in Veterinary Medical Education* 31 (Spring 2006) 5.

⁵¹ Rescue Critters! Brand Mannikins. 2 April 2009. <<http://www.rescuecritters.com>>. Critical Care Jerry and Critical Care Fluffy are available on loan from The Science Bank, at. <https://ssl.perfora.net/animalearn.org/view_sciencebank_item.php?id=124>. <https://ssl.perfora.net/animalearn.org/view_sciencebank_item.php?id=125>.

⁵² Mcnamara, Mary. “Manikin is a dog’s best friend”. 2003 Apr 15. *Los Angeles Times*. 30 Jan 2009<<http://articles.latimes.com/2003/apr/15/entertainment/et-mary15>>.

⁵³ Rescue Critters! Critical Care Fluffy. 29 Aug 2008. <<http://www.rescuecritters.com/p16.htm>>.

and intravenous access with several practice sites for venous access.

Critical Care Jerry, a realistic life-size canine mannikin approximating a 60-70 pound dog, can be used at colleges, veterinary and medical schools, or veterinary technician schools. Jerry provides jugular vascular access, and has an artificial pulse and a realistic airway with representations of the trachea, esophagus, and epiglottis, in addition to working lungs. He can be used in endotracheal placement, compressions, and mouth-to-snout resuscitation,⁵⁴ and can aspirate air & fluid from the thoracic cavity to simulate trauma. Jerry is also designed to perform IV draw and injections, and can be used to demonstrate splinting and bandaging.

Other Rescue Critter Mannikins include Goldie K-9 BHS Simulator,⁵⁵ Female K-9 Urinary Catheter Training Mannikin,⁵⁶ K-9 Intubation Trainer,⁵⁷ and the K-9 Thoracentesis Mannikin.⁵⁸

d. Surgical Simulators

Simulations are useful tools for surgery,⁵⁹ critical care, and clinical-skills practice, and can range from suture and surgery training devices to “patients” controlled by a centralized computer.^{60,61,62} Virtual reality is a critical component of many advanced simulation programs, since it provides an opportunity to practice psychomotor skills and procedures in an interactive, multi-sensory manner. Virtual reality systems can provide 3-D visual experiences, for example, and/or haptic feedback (tactile information.)

Simulation technology, while relatively common in human medical education, is a newer concept in veterinary medicine.⁶³ Researchers, educators, and computer scientists, however, are developing simulators that translate simulation technologies for human medicine into those useful for veterinary surgical training. Similarly, most virtual reality programs in biomedical education have been used for skills enhancement for physicians,⁶⁴ but some veterinary colleges have partnered with computer scientists to develop virtual reality simulation for surgery practice.⁶⁵

• Virtual Reality Surgical Simulation⁶⁶

In what is now part of the core curriculum for veterinary surgical skill training, the Ohio State University's (OSU) College of Veterinary Medicine is integrating the use of low-cost, high resolution simulation to help increase surgical skills training quality, support the reduction of surgical morbidity associated with inexperienced surgeons, and indirectly support a reduction in the use of animals. The project is integrated into OSU's College of Veterinary Medicine's curriculum. The project has been funded in part by the Alternatives Research & Development Foundation (ARDF),⁶⁷ and is directed by Dr. Mary McLoughlin, Associate Professor of Veterinary Medicine, and Mr. Don Stredney, Supercomputer Center Director.⁶⁸

⁵⁴ Rescue Critters! Critical Care Jerry. 29 Aug 2009. <<http://www.rescuecritters.com/p12.html>>.

⁵⁵ Rescue Critters! Goldie K-9 BHS Simulator. 23 February 2009. <<http://www.rescuecritters.com/p29.htm>>.

⁵⁶ Rescue Critters! Female K-9 Urinary Catheter Training Mannikin. 23 February 2009. <<http://www.rescuecritters.com/p14.htm>>.

⁵⁷ Rescue Critters! K-9 Intubation Trainer. 23 February 2009. <<http://www.rescuecritters.com/p7.html>>.

⁵⁸ Rescue Critters! K-9 Thoracentesis Mannikin. 23 February 2009. <<http://www.rescuecritters.com/p17.htm>>.

⁵⁹ An example is the Pulsating Organ Perfusion (POP) Trainer used for minimally invasive surgery training.

⁶⁰ Jukes Nick and M. Chiuiu eds. *From Guinea Pig to Computer Mouse: Alternative Methods for a Progressive Humane Education*, 2nd ed. Leicester, UK: Inter-NICHE, (2003).

⁶¹ The students using a POP trainer will often spend extra hours to further develop their skills

⁶² The DASIE (Dog Abdominal Surrogate for Instructional Exercises), developed at the Ontario Veterinary college, has also been a useful tool for teaching abdominal surgery at a number of institutions.

⁶³ Scalese, R and Barry Issenberg. “Effective Use of Simulations for the Teaching and Acquisition of Veterinary Professional and Clinical Skills.” *Journal of Veterinary Medical Education* 32 (2005):4.

⁶⁴ Virtual reality is useful for teaching endovascular and endoscopic techniques.

⁶⁵ Ohio State University and Colorado State University are in the process of instituting such programs.

⁶⁶ Technology is also used in human medicine at OSU.

⁶⁷ ARDF is AAVS' affiliate organization.

⁶⁸ Stredney, Don, et al. “Simulation Technology in Veterinary Education, Research and Surgical Training.” *Proceedings 2006 ACVS Veterinary Symposium, The Surgical Summit*. Washington D.C., 5-7 Oct 2006.

OSU has acquired data sets to create useful reconstructions of canine, feline, and equine surgeries. The simulations also offer haptic capability, so the students can “feel” forces applied during interaction with the simulator, such as the pressures applied to the drill during a simulated laminectomy, a type of surgical procedure on the bones in the spinal column. The surgical simulation is being integrated into a third year core surgery skills course, where 140 students per year work with the simulator.

According to Dr. McLoughlin, using digital models for clinical, basic research, and education will further show that digital representations are not only valuable alternative methods to learning, but also integral to clinical practice.⁶⁹

• **Live Surgery Simulator**⁷⁰

Another unique and valuable alternative to live surgery has been developed by Dr. Emad Aboud, a neurosurgeon at the University of Arkansas for Medical Sciences. Dr. Aboud’s live surgery simulator is used in medical schools⁷¹ and has been adapted for use in veterinary medical schools. Funded in part by ARDF, this advanced surgical simulator offers a realistic alternative to terminal or otherwise harmful surgery on dogs, cats, and other animals.

This simulator allows any kind of surgical procedure to be practiced under the conditions of live surgery, using a human cadaver or an ethically sourced animal cadaver.^{72,73} A major artery and vein of the cadaver are attached to an artificial blood reservoir, which in turn is attached to a machine that provides a pulsating pressure, filling the vessels with artificial blood, allowing the cadaver specimen to bleed and arteries to pulsate.

Dissection, surgical, and microsurgical procedures such as endoscopic and endovascular procedures, vascular suturing, end-to-end attachments (anastomoses), and bleeding management (hemostasis) can all be conducted using this simulator.⁷⁴ “Students can make skin incisions, suture the incision site, dissect soft tissues, ligate and coagulate bleeding vessels, and practice vascular and intestinal anastomoses, transplantations, and angiograms,” according to Dr. Aboud. In addition, students can withdraw blood samples and insert central and arterial lines.

Dr. Aboud’s simulator is cost effective, and its components can be acquired and assembled for less than \$5,000, and it can be reused repeatedly. Dr. Aboud is currently seeking a producer for this model, but until it is commercially produced, he will provide instructions on how universities can assemble the simulator for their own use.⁷⁵

• **METI Human Patient Simulator**⁷⁶

Medical Education Technologies, Inc., Human Patient Simulator,⁷⁷ developed at the University of Florida (UFL), is an effective teaching device originally used for educating physicians but now available for veterinary education. The human manikin was converted to a gorilla, without the need to completely reinvent a simulator for veterinary students, after a pilot program at UFL found that the simulator was effective for teaching in veterinary medicine.⁷⁸

The simulator models frequent physiologic responses to various drugs, or combinations of drugs, changes in organ function, and mechanical mishaps that can occur during anesthesia and surgery.⁷⁹ Researchers indicated

⁶⁹ Dr. Mary McLoughlin. Ohio State University’s School of Veterinary Medicine. Personal Communication. 26 Aug 2008.

⁷⁰ Also used in medical education.

⁷¹ Neurosurgery departments at the Univ. of Arkansas for Medical Sciences and the Univ. of Miami; Human medical training at the Swaida National Hospital in Syria; International Neurosciences Institutes in Hannover Germany.

⁷² Aboud, Emad, O. Al-Mefty, and M.G. Yasargil. “New Laboratory Model for Neurosurgical Training that Simulates Live Surgery.” *Journal of Neurosurgery*. 97 (2002):1367-72.

⁷³ Ethically sourced cadavers can be obtained through educational memorial programs (EMPs). Aboud, Emad, O. Al-Mefty, and MG Yasargil. New Laboratory Model for Neurosurgical Training that Simulates Live Surgery. *Journal of Neurosurgery*. 97 (2002):1367-72.

⁷⁴ *Id.*

⁷⁵ Requests for Dr. Aboud’s model come from U.S. and international veterinary medical schools.

⁷⁶ See *infra* Section A3, Part f of this appendix regarding the METI Human Patient Simulator.

⁷⁷ Medical Education Technologies (METI). “Human Patient Simulator”. http://www.meti.com/products_ps_hps.htm.

⁷⁸ Modell, JH, S Cantwell, J Hardcastle, et al. “Using the Human Patient Simulator to Educate Students of Veterinary Medicine.” *Journal of Veterinary Medical Education* 29(2002). 111-116:2.

⁷⁹ A special simulator computer program controls the values for physiological parameters and displays them on the monitors for a variety of technical prob-

that it gave students a better background for treating their patients successfully in the future, as well as increased confidence in patient care.⁸⁰

e. Willed Body Donation Programs

There is a growing trend towards using animals that are ethically sourced⁸¹ for veterinary education.⁸² Educational Memorial Programs (EMPs), or Willed Body Donation programs, can be established to provide ethically sourced animals, and are an effective alternative to the harmful use of dogs and cats for teaching.^{83,84}

Universities that have EMPs in place for companion animals include, Tufts University; Western University of Health Sciences; University of Wisconsin; Washington State University; University of California – Davis; University of Minnesota; University of Missouri; and Mississippi State University. University of Florida – Gainesville currently has a willed body donation program in place for large animals. Texas A&M University states that it has a willed body program, yet some of the animals are obtained through shelters and pounds due to companion animal overpopulation which does not fall under the definition of ethically sourced animals.

Western University of Health Sciences' College of Veterinary Medicine in Pomona, California, utilizes animal donation as its sole source of animal specimens for learning purposes. The Willed Deceased Animals for Veterinary Education (WAVE) program is an EMP that includes companion animals and large animals. A memorial service is held at the beginning of each term to acknowledge the humans donating their companion animals and to celebrate their pets' lives.⁸⁵

Tufts University's Cummings School of Veterinary Medicine in Massachusetts has a model EMP that is successful and is well received by students.^{86,87} Established in 1998 after students and faculty raised ethical concerns regarding obtaining and killing healthy animals for dissection, the program has served approximately 900 students in 11 years.⁸⁸ Tufts' EMP allows students to work with ethically sourced dogs of various sizes, as well as cats, and Tufts is initiating a large animal EMP as well.

Donated animals offer case-based or problem-based learning (PBL) opportunities, where students receive a complete medical history. Students can rotate between stations, as opposed to solely focusing on their own dissections, increasing their knowledge of pathological conditions and anatomy surrounding the pathologies.⁸⁹ At the end of the course, student-dissected animals can be saved for next years' class. Tufts has also set up a plastination unit for long term use of specimens.

With Tufts' annual caseload of 26,000 companion animals, there are enough client donated pet bodies to sustain the entire first year anatomy programs, clinical skills labs, surgery labs, faculty research, and continuing education

lems, the physiologic responses to changing clinical conditions of the patient, and to disease states. When medications are given intravenously or by inhalation, the program processes the dose and adjusts the patient's response appropriately. Modell, JH, S Cantwell, J Hardcastle, et al. "Using the Human Patient Simulator to Educate Students of Veterinary Medicine." *Journal of Veterinary Medical Education* 29(2002). 111-116.:2.

⁸⁰ Modell, JH, S Cantwell, J Hardcastle, et al. "Using the Human Patient Simulator to Educate Students of Veterinary Medicine." *Journal of Veterinary Medical Education* 29(2002). 111-116.:2.

⁸¹ "Ethically sourced" refers to cadavers and tissues from animals who have died naturally or have been euthanized in response to natural terminal disease or terminal injury. Animals who have been killed specifically to provide cadavers and tissues are not considered ethically sourced. An animal cadaver purchased or obtained because of "companion animal overpopulation" is also not considered an ethically-sourced cadaver.

⁸² AVAR. "Comparisons of Alternatives Offered at Veterinary Schools." *Alternatives in Veterinary Medical Education* 34.(2007).

⁸³ Kumar, A. "Client donation program to meet the needs of veterinary medical education: Alternatives to healthy animal sacrifice". Eds. N. Jukes and M. Chiu. Leicester, UK. *From Guinea Pig to Computer Mouse: Alternative Methods for Progressive Humane Education* 2nd ed. InterNICHE, 2003. 107-116.

⁸⁴ See *supra* Section A1 of this appendix on undergraduate alternatives.

⁸⁵ College of Veterinary Medicine. Western University. WAVE Program Brochure.

⁸⁶ Responses from first-year veterinary students to the donor program have been positive, and a survey shows it is preferred to animals purchased and/or killed for dissection.

⁸⁷ Kumar, A. Personal communication. 22 Aug 2008.

⁸⁸ Kumar, A., et al. "Client Donation Program for Acquiring Dogs and Cats to Teach Veterinary Gross Anatomy." *Journal of Veterinary Medical Education* 28 (2001): 73-77.

⁸⁹ Vetter, P. "Saying Goodbye to a Beloved Cat and Finding Meaning in Donating a Pet's Body to Veterinary Medicine". 21 Jun 2008. *American Chronicle*. 22 Aug 2008<<http://www.americanchronicle.com/articles/65768>>.

programs of the school. Requests come in across the country from guardians who wish to donate their companion animals to the EMP.

Dr. M.S.A. Kumar, Professor and head anatomist, Department of Biomedical Sciences, Tufts University School of Veterinary Medicine, indicates that there is an increasing awareness and concern regarding shelters selling animal cadavers, and he believes that in 5- 10 years, shelters will not be selling cadavers to vendors or giving them to veterinary schools.⁹⁰ He encourages other universities to consider instituting an EMP, noting that the quality of anatomy education at Tufts University is equal to any university in the U.S.⁹¹

Veterinary clinics can be partners in offering EMPs. Clinics can establish a system of communication with a university so that, if an animal is euthanized at a veterinarian's office external to the campus and the animal's guardian would like to donate the body for education, the cadaver can be transported to the university.

Dr. Kumar estimates that an EMP costs about \$4,000 for a university to initiate, assuming the school owns no embalming pumps, and approximately \$200 to maintain annually. He estimates that \$20 is saved per cadaver by the EMP compared to the cost of acquiring embalmed dogs from biological supply companies, even factoring in start up costs. Thus, EMPs provide an effective, ethical, and cost-efficient alternative to purchasing animal cadavers from biological supply companies and shelters.

f. Blood-Donor Programs

The University of California-Davis' College of Veterinary Medicine has an EMP in place, and it recently established a Blood Bank in February 2008.⁹² The Blood bank is a donor program, which is being used to develop large, reliable sources of blood products for canine patients at the school of veterinary medicine with the goal of being able to save animal lives through transfusions.⁹³ The hope is to develop a group of 300 to 400 regular donors,⁹⁴ who are offered an initial health screening and who could donate blood a few times a year.⁹⁵ This program replaces their prior programs, and lessens stress on animals who would be housed at the university and used specifically for blood donation. Previously, the hospital "obtained blood, for its canine patients from a group of about 30 blood-donor dogs that live for a few years for the hospital, and are adopted out."⁹⁶ Due to cost issues, the blood donation program is currently limited to dogs, and UC-Davis continues to keep its on-campus colony of blood donor cats.⁹⁷

University of Florida also has a Blood Donor program for dogs, the UFVMC Canine Blood Donor Program.⁹⁸ For donors, the university provides physical examinations, preventative vaccinations, and food and treats.⁹⁹

g. Shelter Medicine Programs

Instituting a shelter medicine program allows a veterinary school to eliminate terminal surgical labs using dogs and cats.¹⁰⁰ Shelter medicine programs enable students to obtain hands-on experience performing surgeries, such as spays and neuters, that are beneficial to both the animal patient and the would-be veterinarians.

⁹⁰ Kumar, A. Personal communication. 22 Aug 2008.

⁹¹ Id.

⁹² UC Davis. "New Life-Saving Dog Blood-Donor Program Launched." 26 February 2008. UC Davis News & Information. 1 April 2009. <http://www.news.ucdavis.edu/search/news_detail.lasso?id=8551>.

⁹³ The teaching hospital carries out 400-500 transfusions for cats, cows, goats, horses, pigs, and sheep annually.

⁹⁴ Donor dogs need to be 1 to 8 years old, weigh 55 pounds or more, and never have been pregnant. "Animal Blood Bank Unveiled at UC Davis." 26 February 2008. Sacramento News. KCRA.com. 1 April 2009. <http://www.kcra.com/news/15418704/detail.html?trees=sac&tid=2654255708813&tmi=sac_4pm&tmi=sac_4pm_1_06000302262008&ts=H>.

⁹⁵ "Animal Blood Bank Unveiled at UC Davis." 26 February 2008. Sacramento News. KCRA.com. 1 April 2009. <http://www.kcra.com/news/15418704/detail.html?trees=sac&tid=2654255708813&tmi=sac_4pm&tmi=sac_4pm_1_06000302262008&ts=H>.

⁹⁶ Many of these dogs currently need homes, and the university is looking to place them. UC Davis. "New Life-Saving Dog Blood-Donor Program Launched." 26 February 2008. UC Davis News & Information. 1 April 2009. http://www.news.ucdavis.edu/search/news_detail.lasso?id=8551

⁹⁷ UC Davis. "New Life-Saving Dog Blood-Donor Program Launched." 26 February 2008. UC Davis News & Information. 1 April 2009. <http://www.news.ucdavis.edu/search/news_detail.lasso?id=8551>.

⁹⁸ University of Florida. "FAQs." University of Florida Veterinary Medical Center. 1 April 2009. <<http://www.vetmed.ufl.edu/patientcare/services/bloodbank/faq.html>>.

⁹⁹ Id.

¹⁰⁰ Greenfield CL, A.L. Johnson, et al. "Integrating alternative models into the existing surgical curriculum." Journal of Veterinary Medical Education 21.1 (Spring 1994): 23-27.

When animal shelters and vet schools collaborate in this way, they are able to provide students with crucial opportunities for necessary skills acquisition, particularly for teaching medical and surgical skills and post-operative recovery, as well as experience handling live animals and working with live tissue.^{101,102} In addition, these programs also provide an important service for local communities, as they are vital in helping to reduce the overpopulation of dogs and cats.¹⁰³

There are currently 14 North American veterinary schools that offer some form of elective shelter clinical experience, while 11 of these schools provide surgical experience with shelter animals, either at the shelter or at the university.¹⁰⁴

Several veterinary schools are able to facilitate shelter medicine programs due to grants provided from Maddie's Fund, a foundation established in 1999 to help fund no-kill shelters. Maddie's Fund offers grants to vet schools so that the specialized knowledge and skills of these institutions' faculty and students can be included in the effort to save shelter animals in need.¹⁰⁵

University of California – Davis (UC Davis) School of Veterinary Medicine instituted the first shelter medicine program in 2000 after receiving a grant from Maddie's Fund, and focuses on instruction and hands-on training for veterinary students, diagnostic and medical support for shelters, and research to improve shelter animal medical care.¹⁰⁶

Fortunately, partnerships with universities and local animal shelters are steadily increasing. Today, veterinary schools including Auburn University, Cornell University, Colorado State University, University of Florida, University of Georgia, Iowa State University, and University of Pennsylvania either have shelter medicine programs or externship opportunities for students provided by grants from Maddie's Fund.

Other shelter medicine programs operate at The Ohio State University, Oregon State University, University of Illinois, University of Tennessee, and Washington State University. Recently Louisiana State University and Mississippi State University, through funding from the Humane Society of the United States, were able to start shelter medicine programs.¹⁰⁷ With the help of a grant from Animalearn, University of Georgia is in the process of establishing its own shelter medicine program.¹⁰⁸

Shelter medicine programs range from offering experiences with spay and neuter surgeries (such as at the University of Florida),^{109,110} to also including experience with diagnosis (as at Oregon State University),¹¹¹ disease, and behavioral problems (as at Ohio State University).¹¹²

According to Sharon Harmon, Executive Director of the Oregon Humane Society, "This is the ultimate win-win

¹⁰¹ Smeak, Daniel. "Teaching Veterinary Students Using Shelter Animals". *Journal of Veterinary Medical Education* 35.1(2008): 26-30.

¹⁰² Martinsen, S. and Nick Jukes. "Towards a Humane Veterinary Education." *Journal of Veterinary Medical Education* 32.(2005): 4.

¹⁰³ Association of Shelter Veterinarians. "Vet Medicine Today: Special Report. The Association of Shelter Veterinarians Veterinary Medical Care Guidelines for Spay-Neuter Programs". *JAVMA* 233 (2008):1.

¹⁰⁴ Smeak, Daniel. "Teaching Veterinary Students Using Shelter Animals". *Journal of Veterinary Medical Education* 35.1 (2008): 26-30.

¹⁰⁵ Maddie's Fund. "About Us: Corporate Background." Maddie's Fund. 24 Nov 2008<<http://www.maddiesfund.org/aboutus/background.html>>.

¹⁰⁶ Bailey, Pat. "\$2.2 million grant launches animal-shelter care program." *Dateline UC Davis*. 8 December 2000. 24 November 2008. <http://www.dateline.ucdavis.edu/dl_detail.lasso?id=7496>.

¹⁰⁷ "Beyond Katrina: Three Years Later, HSUS Gulf Coast Programs Flourish". 28 Aug 2008. The Humane Society of the United States. 3 Sep 2008. <http://www.hsus.org/hsus_field/hsus_disaster_center/disasters_press_room/beyond_katrina_three_years_later_0802808.html>.

¹⁰⁸ Please see University of Georgia. *Supra* pg. 10.

¹⁰⁹ Vickroy, Thomas W, M.D. Professor of Physiological Sciences, Interim Dean for Students and Instruction, University of Florida, College of Veterinary Medicine. Personal Communication. 9 June 2008

¹¹⁰ Illg, Gwendy Reyes. Personal Communication. 20 May 2008.

¹¹¹ Oregon State University. OSU Vet Med College Begins Partnership with Oregon Humane Society in Portland. 14 Sep, 2007. Oregon State University. 1 Mar 2009<<http://oregonstate.edu/dept/hcs/newsarch/2007/Sep07/humanesociety.html>>.

¹¹² Smeak, Daniel D., "Teaching Veterinary Students Using Shelter Animals." *Journal of Veterinary Medical Education*. 35.1 (2008):28.

situation for the students and the animals.” Similarly, the Associate Dean for Students at Oregon State University’s College of Veterinary Medicine explained that the partnership with the Oregon Humane Society provided its veterinary students an “unparalleled experience.”¹¹³ Ohio State University students likewise indicated that the shelter medicine program improved both their confidence and introductory skills in surgery.¹¹⁴

Another valuable facet of a shelter medicine programs are “trap-neuter/spay-return” (TNR) programs, which address the plight of feral or stray cat populations who instead of being euthanized at a shelter can be humanely trapped, sterilized, vaccinated, and returned to their colonies and monitored by caretakers. The use of TNR programs is supported by the American Veterinary Medical Association (AVMA) and studies have shown that TNR is a successful method of controlling carefully monitored cat colonies by preventing growth due to reproduction. Studies of populations of cats in communities across the United States indicates that TNR is an effective method of control. When performed on a large scale, the success of TNR programs is seen at animal shelters, due to fewer cats being euthanized.¹¹⁵

The TNR movement began in the 1980s and has been advanced primarily through non-governmental activities. In 1989, the Stanford Cat Network formed to manage cats abandoned by students on the Stanford University campus, the first school to address this growing problem.^{116,117} Today there are several successful TNR programs at schools including Auburn University - Operation Cat Nap, Stanford University - Stanford Cat Network, Texas A&M College Station - Aggies Feral Cat Alliance of Texas, UC Davis - The Feline Medicine Club: Feral Cat Project, and the University of Texas Austin - The Campus Cat Coalition.¹¹⁸ Operation Catnip, the largest TNR program in the United States, was founded in 1998 at the University of Florida College of Veterinary Medicine,¹¹⁹ while Auburn University’s Operation Cat Nap got its start in January 2000 after numerous feral cats and litters of kittens were found on the College of Veterinary Medicine’s campus. Soon after their discovery a TNR program was implemented here to non-lethally control the cat population.¹²⁰

3. Medical Education

Other high-risk endeavors, such as flight and military training, have recognized the value of simulation much earlier than medical education. Adopting their model, however, medical education is now successfully incorporating simulation technology into their training programs.

As a result, U.S. medical schools are phasing out the use of dogs for teaching purposes^{121,122} including terminal dog labs, in which healthy animals are killed following teaching exercises in physiology, pharmacology, and surgery.¹²³ According to officials from USDA, HHS, and NIH, “[t]he use of human cadavers and manikins as surgical models, and more importantly, advancements in the development of computerized simulators, have replaced the use of the

¹¹³ Oregon State University. OSU Vet Med College Begins Partnership with Oregon Humane Society in Portland. 14 Sep 2007. Oregon State University. 1 Mar 2009. <<http://oregonstate.edu/dept/ncs/newsarch/2007/Sep07/humanesociety.html>>.

¹¹⁴ Smeak, Daniel D., “Teaching Veterinary Students Using Shelter Animals.” *Journal of Veterinary Medical Education*. 35.1 (2008):28.

¹¹⁵ Griffin, Brenda, DVM. “The Untouchable Bond: Promoting Care and Control of Feral and Free-Roaming Cats.” Maddie’s Shelter Medicine Program: Auburn University. Maddie’s Fund. 21 Oct 2008. <http://www.maddiesfund.org/projects/vetschool_auburn_catnap.html>.

¹¹⁶ According to Alley Cat Allies, there are tens of millions of stray cats on the streets in the United States.

¹¹⁷ Cummings, Karen. “TNR: The Humane Alternative”. *ASPCA Animal Watch* 23.3 (Fall 2003). Found on Petfinder.com. 1 Jul 2008. <<http://www.petfinder.com/journal/index.egi?>>.

¹¹⁸ Cats on Campus program. Alley Cat Allies. 28 Oct 2008. <<http://www.alleycat.org/NetCommunity/Page.aspx?pid=314>>.

¹¹⁹ Mott, Maryann. “U.S. Faces Growing Feral Cat Problem.” 7 Sep 2004. *National Geographic News*. 7 Apr 2009. <<http://news.nationalgeographic.com/news/pf/10021388.html>>.

¹²⁰ Griffin, Brenda, DVM. “Maddie’s Shelter Medicine Program: Auburn University. The Untouchable Bond: Promoting Care and Control of Feral and Free-Roaming Cats.” Maddie’s Fund. 21 Oct 2008 <http://www.maddiesfund.org/projects/vetschool_auburn_catnap.html>.

¹²¹ Hansen, L, and Gerry R. Boss. “Use of Live Animals in the Curricula of U.S. Medical Schools: Survey Results from 2001.” *Academic Medicine* 77(2002):1147-1149.

¹²² Ammons, SW. “Use of live animals in the curricula of US medical schools in 1994”. *Academic Medicine* 70.8(August 1995):739-743.

¹²³ Koniaris, L, D. Kaufman, TA Zimmers, et al. “Two third year medical student-level laboratory shock exercises without large animals.” *Surgical Infections* 5.4 (Winter 2004): 343-348.

dog in these specific curricula.”^{124,125}

A medical simulation is a device or set of conditions that imitates patients, anatomy, or clinical skills, and that mimics life situations requiring medical treatment.¹²⁶ Available in many forms, it can replace the use of companion animals and other species as human substitutes in medical education programs,^{127,128} and several medical simulators are even being translated into veterinary simulators.¹²⁹

The rising costs and challenges of healthcare in a changing economic landscape demand less costly, more efficient, and more intense methods of training. The long-term costs of simulators are lower than the cumulative costs of using animals.¹³⁰ Additionally, administrative and logistical costs are higher with animal use than with simulation. Due to the necessary close supervision required by faculty when using live animals in training, the utilization of dogs and cats in medical education is a drain on faculty time and resources. Alternatives require less faculty input, putting less pressure on faculty time and budgets.¹³¹

The American Medical Student Association (AMSA) strongly encourages the replacement of animal labs with non-animal alternatives in medical education,¹³² and condemns the use of dogs and cats from pounds, shelters, and Class B random source dealers, including those who were household pets.¹³³ The AMSA also encourages the utilization of non-animal teaching materials and methods in continuing medical education;¹³⁴ urges that all medical schools allow the use of live animals to be optional for students who, for moral or pedagogical reasons, feel such use is unnecessary;¹³⁵ and encourages the provision of educational materials for these students.¹³⁶ Additionally, the American Heart Association, (AHA) “does not require or endorse the use of live animals” for Pediatric Advanced Life Support (PALS) class,¹³⁷ and distances itself from any of those programs that continue to use animals.”¹³⁸

a. Software

Software can be used in human medicine for teaching anatomy, physiology, pharmacology, and related disciplines, without requiring the use of animals.

• The Virtual Physiology Series

The Virtual Physiology Series, consisting of five interactive simulation CD-ROMs including SimNerv, SimMuscle, SimVessel, SimHeart, and SimPatch, allows students to illustrate concepts or perform tasks without harming animals. This series can completely reproduce experiments previously done with animals in a wet lab, and covers the entire field of nerve-muscle physiology, simulating all classic experiments conducted by medical, dental,

¹²⁴ Kulpa-Eddy, Jodie, Margaret Snyder, and William Stokes. “A Review of Trends in Animal Use in the United States (1972-2006).” *AATEX* 14, Special Issue. Proc. 6th World Congress in Alternatives & Animal Use in the Life Sciences. 14(2008): 163-165.

¹²⁵ Unfortunately, in some cases, such as at the Medical College of Wisconsin, terminal pig labs are being used as a replacement for terminal dog labs, instead of using viable alternatives such as simulations and mannequins.

¹²⁶ Balcombe, J. “Medical Training Using Simulation: Toward fewer animals and Safer Patients.” *ATLA* Supplement 1.32(2004): 533-560.

¹²⁷ Balcombe, J. “Medical Training Using Simulation: Toward fewer animals and Safer Patients.” *ATLA* Supplement 1.32(2004): 533-560.

¹²⁸ Scalese, R and Barry Issenberg. “Effective Use of Simulations for the Teaching and Acquisition of Veterinary Professional and Clinical Skills.” *Journal of Veterinary Medical Education* 32 (2005): 4.

¹²⁹ See *supra* Section A2 of this appendix on surgical simulators in veterinary education.

¹³⁰ Samsel *et al.* “Cardiovascular physiology teaching: Computer simulations vs. animal demonstrations”. *American Journal of Physiology* 266 (1994): 36-46.

¹³¹ *Id.*

¹³² American Medical Student Association. “Principles Regarding Vivisection in Medical Education.” (2007) 4 February 2009. <<http://www.amsa.org/about/ppp/vivi.cfm>>.

¹³³ *Id.*

¹³⁴ American Medical Student Association. “Principles Regarding Vivisection in Medical Education.” (1993) 9 February 2009. <<http://www.amsa.org/about/ppp/vivi.cfm>>.

¹³⁵ American Medical Student Association. “Principles Regarding Vivisection in Medical Education.” (1993) 9 February 2009. <<http://www.amsa.org/about/ppp/vivi.cfm>>.

¹³⁶ American Medical Student Association. “Principles Regarding Vivisection in Medical Education.” (1986) 4 February 2009. <<http://www.amsa.org/about/ppp/vivi.cfm>>.

¹³⁷ Cats, kittens, and other animals are sometimes used in intubation. Please See Class B Dealers C&C Kennels subsection. *Supra* pg. 27.

¹³⁸ Smith, I. “American Heart Association Agrees with PETA About Eliminating Animal Labs.” 13 February 2009. *RushPRNews*. 17 March 2009. <<http://www.rushprnews.com/2009/02/13/american-heart-association-disapproves-testing-on-animal-labs-memo-reveals/>>.

veterinary, zoology, and science students. Manufacturers of this software include cLabs¹³⁹ and Thieme Publishers.¹⁴⁰

b. Human Patient Simulators

Human patient simulators (HPS) are digitally enhanced mannequins, with the animation capability to produce respiratory movement, palpable pulses, heart and lung sounds, realistic airway anatomy, twitches and spasms, simulated body fluids. A system computer governs these activities, and also regulates drug function, metabolism, cardiac function, gas exchange, and fluid balance.¹⁴¹ The simulator allows for replicating clinical scenarios, providing vital signs, breath and heart sounds, arterial pulses, lungs that take in oxygen and exhale carbon dioxide, etc. Students can both diagnose and treat reactions to pharmaceuticals, and perform anaesthesia, intubation, chest tube insertion, and other skills.^{142, 143}

• Live Surgery Simulator¹⁴⁴

Dr. Emad Aboud, a neurosurgeon at the University of Arkansas for Medical Sciences, created an advanced simulator that is currently being used in both medical and veterinary schools to model live surgery. It has been used at the University of Arkansas for Medical Sciences in Little Rock in its neuroscience center, as well as the University of Miami, Swaida National Hospital in Syria, and the International Neurosciences Institutes in Hanover, Germany.¹⁴⁵

Dr. Aboud's simulator allows any kind of surgical procedure to be practiced under the conditions of live surgery, using a human cadaver or an ethically sourced animal cadaver.^{146,147} A major artery and vein of the cadaver are attached to an artificial blood reservoir, which in turn is attached to a machine that provides a pulsating pressure, filling the vessels with artificial blood, allowing the cadaver specimen to bleed and arteries to pulsate.

Dissection, surgical, and microsurgical procedures such as endoscopic and endovascular procedures, vascular suturing, end-to-end attachments (anastomoses), and bleeding management (hemostasis) can all be conducted using this simulator.¹⁴⁸ "Students can make skin incisions, suture the incision site, dissect soft tissues, ligate and coagulate bleeding vessels, and practice vascular and intestinal anastomoses, transplantations, and angiograms," according to Dr. Aboud. In addition, students can withdraw blood samples and insert central and arterial lines.

Dr. Aboud's simulator is cost effective, and its components can be acquired and assembled for less than \$5,000, and it can be reused repeatedly. Dr. Aboud is currently seeking a producer for this model, but until it is commercially produced, he will provide instructions on how universities can assemble the simulator for their own use.¹⁴⁹

• METI Human Patient Simulator¹⁵⁰

Medical Education Technologies, Inc. (METI) Human Patient Simulator¹⁵¹, developed at the University of Florida (UFL), is an effective teaching device for educating physicians (and can also be utilized in veterinary medicine).

¹³⁹ cLabs software. <http://www.clabs.de>. 24 Aug 2008.

¹⁴⁰ Thieme Publishers. <<http://search.thieme.com/query.html?tokenid=SID2473569430801&start=1&qp=front%3Ayes&qt=virtual+physiology+series&x=0&y=024>>. Aug 2008.

¹⁴¹ Balcombe, J. "Medical Training Using Simulation: Toward fewer animals and Safer Patients." *ATLA Supplement* 1.32(2004): 533-560.

¹⁴² Drone, J. "New directions for Medical Education." *Good Medicine* 14 (1999).

¹⁴³ Issenberg, S.B., W.C. McGaghie, I.R. Hart, et al. "Simulation technology for health care professional skills training and assessment". *Journal of American Medical Association* 282 (September 1999): 861-866.

¹⁴⁴ See *supra* section A2 of this appendix regarding veterinary alternatives.

¹⁴⁵ This simulator, developed at the University of Arkansas, and funded in part by ARDF, offers a realistic alternative to live surgery.

¹⁴⁶ Aboud, Emad, O. Al-Mefty, and M.G. Yasargil. "New Laboratory Model for Neurosurgical Training that Simulates Live Surgery." *Journal of Neurosurgery*. 97 (2002):1367-72.

¹⁴⁷ Ethically sourced cadavers can be obtained through educational memorial programs (EMPs). See *supra* section on EMPS. Aboud, Emad, O. Al-Mefty, and MG Yasargil. New Laboratory Model for Neurosurgical Training that Simulates Live Surgery. *Journal of Neurosurgery*. 97 (2002):1367-72.

¹⁴⁸ *Id.*

¹⁴⁹ Requests for Dr. Aboud's model come from U.S. and international veterinary medical schools.

¹⁵⁰ See *supra* Section A2 d of this appendix regarding the METI Human Patient Simulator.

¹⁵¹ Medical Education Technologies (METI). "Human Patient Simulator". http://www.meti.com/products_ps_hps.htm.

The simulator models frequent physiologic responses to different drugs, combinations of drugs, changes in organ function, and mechanical mishaps that occur during anesthesia and surgery.¹⁵²

• Endoscopy AccuTouch

Another human patient simulator, Endoscopy AccuTouch®, is a computer based surgical simulator that covers endoscopic procedures including flexible bronchoscopy, and upper and lower gastrointestinal flexible endoscopy.¹⁵³ While endoscopic procedures are some of the most commonly practiced medical procedures today, the motor skills required to successfully perform these can be difficult to train and assess. The simulator uses haptic technology, providing realistic force-feedback, replacing animal use with a mannequin.¹⁵⁴

c. Virtual Reality Simulators

The term “virtual reality” refers to advanced software with interactive capabilities and powerful three dimensional graphics, allowing the user to become immersed within the experience. Virtual Reality Simulators (VRS) can use high fidelity simulation to replicate procedures in laparoscopy and endoscopy where anaesthetized dogs and/or pigs would otherwise be used.¹⁵⁵

The Medicine Meets Virtual Reality Program (MMVR) is an annual convention dedicated to the subject of virtual reality and medicine, and prides itself on examining and guiding the “future of healthcare.”¹⁵⁶

B. Animalearn’s The Science Bank

Animalearn’s The Science Bank¹⁵⁷ is a free loan program that can help trim thousands of dollars from life science budgets while offering students the latest in innovative technology for learning life science.¹⁵⁸ The Science Bank consists of over 450 alternatives to dissection, including virtual dissection programs with a considerable range in style, imagery, educational level, animation, and technique to suit a variety of needs. Many realistic models and mannequins with anatomical and physiological capabilities are also available free on loan through The Science Bank. Many of the humane science products available on loan through The Science Bank are available in multiple quantities to outfit entire classrooms, and alternatives can be used in combination, giving students a multi-dimensional experience. The Science Bank always has the latest technologies available to replace the use of animals in K-12, undergraduate, veterinary, and medical education.

Conclusion

Whether training undergraduate or graduate life science, medical, or veterinary students, there is no justifiable reason for dogs and cats to be harmed in the process. With the vast amount and wide variety of available alternatives available to harming and killing dogs and cats for educational purposes, universities can easily and efficiently locate and implement educationally effective humane learning tools into their curriculum. Many colleges and universities are implementing alternatives to harming dogs and cats in the classroom, but there are still a lot of changes that need to be made. Students at all levels of education benefit from learning without harming dogs and cats, as studies indicate they perform as well, and in most cases better, than those who harmed animals. Alternatives to using dogs and cats not only benefit students, but they also save money, are logistically beneficial, and minimize pain and distress to thousands of animal lives. Contact Animalearn for information regarding how to borrow free alternatives from The Science Bank loan program.

¹⁵² A special simulator computer program controls the values for physiological parameters and displays them on the monitors for a variety of technical problems, the physiologic responses to changing clinical conditions of the patient, and to disease states. When medications are given intravenously or by inhalation, the program processes the dose and adjusts the patient’s response appropriately.

¹⁵³ Immersion Medical. “Surgical Simulators: Endoscopy.” 3 Feb 2009. <http://www.immersion.com/medical/products/endoscopy/>.

¹⁵⁴ Balcombe, J. “Medical Training Using Simulation: Toward fewer animals and Safer Patients.” ATLA Supplement 1.32(2004): 533-560.

¹⁵⁵ *Id.*

¹⁵⁶ “Medicine Meets Virtual Reality 17. Nextmed: Design for the Well Being.” Nextmed. <http://www.nextmed.com/index.html>. 5 November 2008.

¹⁵⁷ Animalearn. www.animalearn.org.

¹⁵⁸ “Cost Comparison Sheet”. Animalearn. <https://ssl.perfora.net/animalearn.org//resources01.php>. 3 Feb. 2009.

2. Guide to Establishing an Educational Memorial Program (EMP)

How to Create an Educational Memorial Program (EMP) at Your College or University

An EMP presents both an ethical and cost-effective source of animals for teaching.

1. Decide which types of animals the EMP will include.

This can be small (dogs and cats) and/or large animals (cows, horses, etc.). In order for the program to be considered 'ethically sourced', the animals have to be euthanized for medical reasons, or have died from natural causes, and not euthanized due to the 'over-population' problem¹⁵⁹ or an animal-related industry.

2. Estimate start-up costs and annual costs. Decide on a budget.

An EMP costs around \$4000 to initiate, which includes the purchase of embalming pumps, and about \$200 to maintain annually thereafter.¹⁶⁰ Dr. Kumar, head anatomist at Tufts University School of Veterinary Medicine, states that there is a significant cost savings from having an EMP, i.e. approximately \$20 per cadaver, when compared to the cost of acquiring embalmed dogs from biological supply companies.¹⁶¹ This cost savings even includes the factoring in of initial start-up costs.

3. Determine the departments or program for which the cadavers will be used.

In veterinary medicine, animals donated through an EMP offer case-based learning opportunities, where students receive the animal's complete medical history.¹⁶² This expands the opportunities for learning, because it allows students to rotate between stations, learning about various animals' conditions, rather than solely focusing on their own dissections in gross anatomy labs. Also, the student learns about pathological conditions, and the condition of surrounding anatomy.

At the undergraduate level, donated animals can be used for the purpose of dissection, instead of purchasing animals from biological supply companies.¹⁶³

4. Establish relationships with hospitals and/or veterinary medical clinics.

Animals donated to an EMP can come from university affiliated hospitals, veterinary clinics, or private veterinary clinics. The source of animals that is most convenient for a college or university depends on the specific needs of an educational program, location, and related issues. Contact individual institutions to discuss the feasibility of setting up such a program with animals from their facility.

5. Decide on the number of cadavers required for curricular needs.

The number of cadavers needed to fulfill learning objectives is important to know when instituting an EMP. For example, At Tufts' University's School of Veterinary Medicine, there is an annual case load of 26,000 companion animals at the veterinary hospital, therefore even a small percentage of donors allow the program more animals than they require for teaching.¹⁶⁴ At an average class size of 80, and running the program for 11 years, there were approximately 900 veterinary students who learned anatomy and other procedures here based on EMP dogs and

¹⁵⁹ Miller, Tamara. Director, Willing Deceased Animals for Veterinary Education (WAVE). Undated sample letter.

¹⁶⁰ If the university owns embalming pumps, initial start-up costs will be much less. Kumar, A. Personal communication. 22 Aug 2008.

¹⁶¹ Kumar, A. Personal communication. 22 Aug 2008.

¹⁶² Kumar, A., et al. "Client Donation Program for Acquiring Dogs and Cats to Teach Veterinary Gross Anatomy." *Journal of Veterinary Medical Education* 28 (2001): 73-77.

¹⁶³ Class B dealers.

¹⁶⁴ Kumar, A. Personal communication. 22 Aug 2008.

cats. There are enough client donated animal cadavers to sustain not only the 1st year DVM anatomy programs, but also the clinical skills labs, surgery labs, faculty research, and continuing education programs of the school.¹⁶⁵

6. Develop a brochure or other informational piece to inform animal guardians of the need for animals donated through an EMP.

Animal guardians at the veterinary hospital or veterinary clinic can read the brochure to learn about the importance of the EMP, and they can decide if donating their companion animal is right for them. The decision for euthanasia is made through agreement of the animal guardian and the veterinarian. The guardian receives the humane euthanasia brochure, learning the available options. To ensure the guardian is not motivated to donate the companion animal for financial reasons, there is no mention of any fee waiver of euthanasia until after the guardian decides to donate the animal's remains.¹⁶⁶

7. Set up a system of communication with the hospitals and/or clinics.

The veterinary school needs to have a system in place so the clinic or hospital can communicate with them when a body is donated for the EMP program. A staff member must be designated to route such communication to appropriate personnel and to take designated action once the animal donation is made. For example, at Western University of the Health Sciences College of Veterinary Medicine, the Willed Deceased Animals for Veterinary Education (WAVE) program accepts donations within 45 miles of the university and provides transportation of donated animals back to the university.¹⁶⁷

8. Set up a transportation plan and put a logistical process in place.

If the animal is euthanized at a veterinary clinic external to the campus, there is a need to transport the cadaver from the vet clinic to the college. The vehicle used for transport, and the designated staff member who is to transport the animal's remains must be in place.

Also, there must be a plan in place indicating where the animal's remains will be stored or which department will receive them. At Tufts', if a cadaver is to go to the anatomy lab, the anatomy secretary is contacted immediately and a copy of a signed donation form with a case number is faxed to the anatomy office.¹⁶⁸

9. Decide on staff that will be involved in the embalming process.

Aside from staff involved in the communication, transportation, and other logistical processes of the EMP, there must be staff involved in the embalming process. At Tufts', students are employed part-time to assist in the embalming process, and it takes approximately two hours to embalm a dog, and with several perfusion pumps multiple animals can be prepared quickly.¹⁶⁹ The remains are injected with heparin prior to embalming, or they can be latexed (if preferred).¹⁷⁰ Embalmed animals are tagged and the case file on the animal is identified with the ear tag.¹⁷¹

10. Consider saving student-dissected animals for next years' classes.¹⁷²

This would require setting up a plastination unit¹⁷³ where specimens may be plastinated for long term use.

11. Develop an appropriate way to memorialize the animals in EMPs.

At Western, a memorial service is held at the beginning of each term to acknowledge the humans donating their

¹⁶⁵ *Id.*

¹⁶⁶ At Western University of the Health Sciences, animal guardians can elect to have cremated animal remains returned to them, except in cases of livestock animals over 60 lbs. WAVE brochure. College of Veterinary Medicine. Western University of Health Sciences.

¹⁶⁷ Miller, Tamara. Director, WAVE program. Undated letter.

¹⁶⁸ Kumar, A. Personal communication. 22 Aug 2008.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² Kumar, A., et al. "Client Donation Program for Acquiring Dogs and Cats to Teach Veterinary Gross Anatomy." *Journal of Veterinary Medical Education* 28 (2001): 73-77.

¹⁷³ Tufts' University of Veterinary Medicine has set up a plastination unit.

companion animals and to celebrate the animals' lives (Tamara Miller, Director of the WAVE program). This is a respectful way to display appreciation for those who help make the EMP a success.

12. Refer guardians to other EMPs when needed.

Interest in the Tufts EMP has grown considerably, and they are getting more animals donated than anticipated. They receive phone calls from individuals across the country who would like to donate their companion animal, and they direct them to colleagues at other universities that have EMPs, so that other students can benefit.

3. Guide to Passing a Student Choice Policy

1. Address current academic requirements and curricular issues.

a. Supporting Documentation

Those proposing and considering a student choice policy at their college or university should adequately prepare by reviewing existing student choice policies at other universities.¹⁷⁴ Particularly important to many faculty and administration is providing supporting documentation from top-tier universities. Addressing issues of pedagogy is critical to a policy's success.

b. Course Structure

Once the policy is adopted, many universities comprehensively allow students to utilize alternatives in all courses where there is animal use, but some universities develop a more limited policy. Due to logistical constraints, some universities offer "alternatives-only" courses in specific semesters, expecting students to structure their schedule by selecting the courses that only use alternatives, instead of expecting faculty to provide both options in every course.

c. Requirements

Policies have the most chance of success when adequate preparation is taken to understand and uncover requirements from accreditation bodies that may affect the departments covered by the policy. Some scientific fields have specific course requirements for students or accreditation, which may need to be considered.

2. Define the administrative scope of the policy and which units will be affected by the policy.

a. Affected Units

It is important to decide whether the entire university, specific departments, or certain courses, including some electives, courses for science majors, courses for science non-majors, etc., will be affected.

b. Implementation

If a university-wide governing body passes a policy, the responsibility for implementing the policy will differ considerably from one that is overseen by a specific department. In some universities, departments retain autonomy regarding the use of alternatives, while most place the locus of control at a campus level.

3. Clarify students' options for choice and clearly designate classes with animal use.

It is critical to denote whether students who plan to pursue a life science or similar degree will be able to use alternatives, or if the policy will only apply to non-majors. Students should be aware of their options for choosing an alternative, whether alternatives are provided, and whether specific alternatives are proscribed, or if students are expected to access their own alternatives. Also, once passed, the policy should be publicized so that students are made aware of their opportunities to select an alternative. Notations should be made which indicate the procedures involved for students who select an alternative, for example, whether it occurs at the beginning of a

¹⁷⁴ For example, a written description of Hofstra University's student choice policy can be found at: http://www.hofstra.edu/Academics/Colleges/HCLAS/BIO/bio_animaldissection.html, accessed 4 February 2009; and University of Illinois Champaign-Urbana policy, *infra* note 175 of this appendix. Other examples highlighted *infra* pg. 36 of this report.

course as listed on the syllabus, so they have adequate time to select an alternative or choose another course. A procedure for students designating their choice should become part of the policy.

4. Assign responsibility to identify and acquire effective alternatives for courses where needed.

The process as well as the individuals responsible for selecting, identifying, and acquiring alternatives should be clarified. If the process is more centralized, these activities may be handled by the science department head. In other cases, it may be the responsibility of the student taking the course to acquire suitable alternatives.

5. Identify a supportive faculty member to spearhead policy efforts for initiation, implementation, and follow-up, also fostering a collegial environment.

The faculty member could be a respected member from any discipline, and should be involved in the entire process to lend support and credibility.

4. Sample of a Model Student Choice Policy¹⁷⁵

Rationale

- There is a segment of the student body whose religious, ethical, or personal belief systems prohibit them from dissecting, vivisectioning, or otherwise using a vertebrate or invertebrate animal in their educational pursuits.
- Initiatives to diversify the university student body are increasing the number of students whose religious, ethical, or personal beliefs compel them to request alternatives to dissection, vivisection, or other vertebrate or invertebrate animal use.
- Students should be provided alternatives to dissection, vivisection, or other vertebrate or invertebrate animal use, which do not conflict with their belief systems.

Policy Recommendations

A. Undergraduate Courses

1. Any and all undergraduate core curriculum, specialty, or elective classes requiring students to dissect, vivisection, or otherwise use an invertebrate or vertebrate animal must allow alternatives to students who request them, without penalizing the student.
2. The university shall make this information readily available to these students at the time of priority registration:
 - a. If alternative assignments will be provided for students who request them or if students are responsible for securing their own alternatives;
 - b. If there is a process for requesting or securing alternative assignments;
 - c. What alternative assignments are acceptable substitutes for the vertebrate or invertebrate animal dissection, vivisection, or use.

B. Graduate Courses

1. In all graduate courses involving vivisection of vertebrate and invertebrate animals, alternatives should be allowed for students who request them.
 - a. If vivisection is a required part of the graduate course, and a suitable non-animal alternative cannot be found by the student, departments and faculty are required to locate and procure ethically-sourced vertebrate or invertebrate animals that are not harvested for the purpose of dissection or due to pet overpopulation.
 - b. Students requesting an alternative to vivisection in graduate courses which no suitable non-animal alternative can be found must also be afforded the accommodation of alternative activities that are beneficial and not harmful or terminal to the animal.
2. In all graduate courses involving the dissection of vertebrate and invertebrate animals, alternatives should be provided for students who request them. If dissection is a required part of the graduate course, and no suitable non-animal alternative can be found, departments and faculty are required to locate and procure ethically-sourced vertebrate or invertebrate animals that are not harvested for the purpose of dissection or due to pet overpopulation.

C. Requesting an Alternative

¹⁷⁵ See University of Illinois at Urbana-Champaign policy.

Dying to Learn

Students requesting an alternative to dissection, vivisection, or other vertebrate or invertebrate animal use should ask their instructor to use an alternative.

1. Requests to instructors should be made in writing.
2. Requests should be made by the end of the second week of class.
3. Instructors should consider such correspondence from students confidential.

D. Transparency of Policy

The written Student Choice Policy informing students of the availability of alternatives for courses requiring dissection, vivisection, and other uses of vertebrates should be provided in writing on the student center web page.

1. If a school or department requires students to dissect, vivisect vertebrate or invertebrate animal in courses, information about the procedure and time requirement or requesting an alternative should be made transparent on the department's or school's webpage.
2. If a course requires students to dissect, vivisect, or use a vertebrate or invertebrate animal, the procedure and time requirement of requesting an alternative should be made conspicuous on the course syllabus.

5. Sample of a Model No Random Source Animals Policy

In order to prevent the use of lost or stolen pets, X University may not purchase or use random source animals for research or teaching. Random source animals as defined by 9 C.F.R. §1.1 are “dogs and cats obtained from pounds or shelters, auction sales, or from any person who did not breed and raise them on his or her premises.”



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