

**BEFORE THE DEPARTMENT OF DEFENSE**

In re: U.S. Army Medical Department  
U.S. Special Operations Command  
U.S. Army Medical Research Institute of Chemical Defense  
and all other DoD components that provide combat  
trauma training and chemical casualty care training courses

Docket No. \_\_\_

**PETITION FOR ENFORCEMENT**

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## **1. Action Requested**

This petition requests that the above addressed Department of Defense (DoD) officials exercise their authority to require that existing alternative methods replace the use of live vervet monkeys in chemical casualty care training courses as well as the use of live goats, pigs, and any other animals in combat trauma training courses. The replacement of this animal use is required under subparagraphs 5b and 5h of Army Regulation 40-33, Secretary of the Navy Instruction 3900.38C, and Air Force Manual 40-401(I), *The Care and Use of Laboratory Animals in DOD Programs* (Joint Regulation).

Vervet monkeys are given a toxic dose of physostigmine, inducing a simulated chemical agent attack. Pigs and goats are subjected to severe injuries, including stab wounds, gunshot wounds, burns, and amputations. The use of vervet monkeys by the U.S. Army Medical Research Institute of Chemical Defense constitutes a clear violation of the Joint Regulation, as does the use of pigs and goats by the U.S. Army, Special Operations Command, and other services. Educationally superior nonanimal training methods exist that could immediately replace the use of monkeys. Likewise, the procedures performed on goats and pigs can be replaced by educationally equivalent or superior nonanimal training methods.

## **2. Animal Use in Chemical Casualty Care Training Courses**

### **2.1. Summary**

In the U.S. Army Medical Research Institute of Chemical Defense's (AMRICD) "Management of Chemical and Biological Casualties" (MCBC) and "Field Management of Chemical and Biological Casualties" (FCBC) courses, vervet monkeys are given a toxic dose of the drug physostigmine during the courses' "Chemical Casualty Resuscitation Practical Exercise." The exercise—demonstrated in the appended video—takes place at Aberdeen Proving Ground in Maryland and is intended for physicians, nurses, medics, and other medical personnel. The toxic dose of physostigmine, a cholinesterase inhibitor, acts as a nerve agent, inducing potentially fatal cholinergic crisis.

### **2.2. Animal Welfare Concerns Are Raised by the Appended Training Film and Accompanying Animal Use Protocol**

To prepare for the cholinergic crisis exercise in the MCBC and FCBC courses, medical personnel watch a training film in which a vervet monkey is injected with physostigmine. According to the film and accompanying animal use protocol, the symptoms of cholinergic crisis—many of which are observed in the training video—include the following:

- Diarrhea
- Vomiting (emesis)
- Urination
- Muscle twitching (fasciculations)
- Seizures
- Severely low blood pressure (hypotension)
- Abnormally slowed heart rate (bradycardia)
- Profuse salivation
- Cyanosis (a bluish discoloration of the skin and mucous membranes due to a dangerously low blood oxygen level)

- Sweating
- Difficulty breathing due to constriction of the airways in the lungs (bronchoconstriction) and secretions in those airways (increased bronchial secretions)
- Cessation of respirations<sup>1,2</sup>

After injection, the animal in the training film is seen twitching violently, from his jaw to his hind legs, and may be experiencing a seizure.<sup>3</sup> Henry Melvyn Richardson, D.V.M., a California veterinarian with more than 30 years of experience—much of it with nonhuman primates—explains:

After physostigmine is given in the training video, the monkey goes through a violent spasm in an apparent involuntary attempt at clearing the trachea of fluid. With ketamine and physostigmine both causing increased salivation, this primate is close to drowning in his own saliva. I see no suction apparatus in the video and a pool of fluid appears around the head of the animal at one point in the video . . . The risks of related complications were not addressed in the video.<sup>4</sup>

While defecation is not observed in the training film, during a September 2005 cholinergic crisis lab, a vervet monkey was observed to be “shaking vigorously . . . like a chiwowa [sic] shitting razor blades.”<sup>5</sup> The animals involved in this training lab are subjected to this procedure up to six times per year.<sup>6</sup> Repeated exposure to physostigmine is known to cause serious complications, including death, and its effects can be exacerbated by the sedative ketamine. Dr. Richardson explains:

In my early career, veterinarians used ketamine as a lone anesthetic, but most of us realized the limitations and risks of doing so. Ketamine alone provides poor muscle relaxation, increased salivation, laryngeal spasms . . . Given the known effects of physostigmine, I am deeply concerned that the combination of the agent with ketamine poses an unacceptable risk of respiratory collapse.<sup>7</sup>

Pain from muscle contraction or other symptoms of physostigmine may linger as the effects of ketamine decrease. As the animals recover from anesthesia and become aware of their pain and experience hallucinations often associated with ketamine, they may become distressed. They may also become anxious.

Lastly, vervet monkeys are well known for their repertoire of alarm calls and other vocalizations.<sup>8,9</sup> Such vocalizations are impossible for the animal to make or for human observers to rely on as an indicator of pain and suffering in this training scenario due to sedation and the placement of hardware for artificial respiration.

Vervet monkeys are also known for having a relatively calm demeanor compared to some other species of primates used in laboratories. (For example, they fight less often than rhesus macaques.) Evidence also suggests that they mask signs of pain.<sup>10</sup> Taken together, these facts raise considerable concern that pain and suffering experienced by the monkeys before, during, and after the training exercises may go unrecognized by trainees, who are entirely unfamiliar with nonhuman primates, and even by staff.

### **2.3. Limitations of Animal Use Are Demonstrated in the Appended Training Film**

The use of vervet monkeys in this course distracts from the real-world, clinically valid training that medical personnel should receive when preparing to manage a cholinergic crisis. While the medical personnel in the MCBC/FCBC cholinergic crisis labs do provide “supportive therapy in the form of assisted ventilation,” the primary function of this exercise is observation.<sup>11</sup> Many of the observations that course participants must make during a cholinergic crisis are hampered by the use of nonhuman primates.

Despite claims by the training film’s narrator that vervet monkeys have “similar anatomy to humans,” significant physical differences make the use of these animals educationally problematic.<sup>12</sup> Vervet monkeys, like most nonhuman primates, lack a white sclera (the outer coat that covers much of the eyeball) and the texture of the skin on their faces and hands is significantly different from humans. These differences make it particularly difficult to observe some of the symptoms of cholinergic crisis. For instance, in the training video, a trainee must wipe the hands and feet of the monkey in order to determine whether the animal is sweating.<sup>13</sup> This scenario differs from diagnosing cholinergic crisis in a human patient, in which diaphoresis (profuse perspiration) is usually visible. In humans, the initial symptoms of cholinergic crisis include nausea and gastrointestinal discomfort, which rely on subjective report, as well as vomiting, urinary incontinence, and diarrhea, which are not observed in the training video.

Lastly, course participants are told to “observe the posture and rigidity of the tail” of the monkey.<sup>14</sup> This instruction is particularly irrelevant considering that the lab is intended to teach medical personnel how to appropriately manage cholinergic crisis in human patients.

### **2.4. Superior Training Methods Exist**

The training film’s narrator misleadingly states that “the primate is the established and preferred *animal model* for nerve agent simulation” (emphasis added).<sup>15</sup> But the narrator fails to recognize that superior nonanimal, human-based training methods exist that could immediately replace the use of vervet monkeys in the U.S. Army’s “Chemical Casualty Resuscitation Practical Exercise.”<sup>16</sup> Researchers with the Israel Defense Forces Medical Corps and Israel’s Carmel Medical Center have developed a nonanimal training curriculum for the medical management of patients exposed to nuclear, biological, and chemical weapons.<sup>17, 18</sup> The course includes lectures, simulation training, and the use of moulage, in which actors with applied makeup mimic the symptoms of chemical warfare casualties.

In addition, John Pawlowski, M.D., Ph.D., Director of Anesthesia at Beth Israel Deaconess Medical Center in Boston and Assistant Professor at Harvard Medical School, has organized numerous scenarios that simulate mass casualty incidents and nerve gas attacks. These scenarios use human patient simulators, which mimic human responses to biological and nerve agents—including physostigmine—and moulage.<sup>19</sup> Similar models are used at medical centers across the United States to prepare personnel for mass casualty incidents in the case of a terrorist attack.

### 3. Animal Use in Combat Trauma Training Courses

#### 3.1. Summary

The U.S. military's current use of animals in combat trauma training courses primarily includes courses conducted by the Army and Special Operations Command. In 2007 alone, more than 5,000 live goats were used and killed in combat trauma training courses at Fort Sam Houston, Fort Bragg, and elsewhere. Many of these animals were used to teach procedures featured in the appended training film despite the wide availability of nonanimal training methods. In addition, in 2007—the most recent year for which numbers are available—more than 3,500 pigs were used in combat trauma training courses. In total, these courses use approximately 9,000 animals each year.<sup>20</sup>

#### 3.2. Limitations of Animal Use Are Demonstrated in the Appended Training Film

The use of goats and pigs for combat trauma training is suboptimal due to, among other issues, the animals' anatomical and physiological differences from humans. Compared with humans, goats and pigs have smaller torsos and limbs, thicker skin, and important differences in anatomy of the head and neck, internal organs, rib cage, blood vessels, and airway. Many of these differences are demonstrated in the appended training film for the Army Medical Department's "Tactical Combat Medical Care" (TCMC) course. The instructor in the training film repeatedly references significant differences between training on live goats and human casualties. The following differences (most of them illustrated by the instructor) appear in the film:

- During section 1 of the film (*Venous Cutdown*) the instructor points out the inadequacy of the goat's vascular anatomy to model that of adult human casualties.
- During section 5 (*Combat Application Tourniquet and Pressure Dressing*)—intended to teach hemorrhage control—the assisting Soldiers easily lift and hold the goat's leg with one hand. The comparatively small size and low weight of the animal's leg, and the associated differences in vascular location and access, demonstrate significant anatomical differences between the limb of a goat and that of a Soldier.
- During section 8 (*Needle Thoracentesis*) the instructor informs course participants that **"in our human casualty the landmarks are the second intercostal space" (between the second and third ribs) but "in our animal we're going to utilize the seventh or eighth intercostal space."** The instructor also tells viewers to "count up from the 13th rib on the animal up to the seventh or eighth intercostal space." This instruction creates yet more confusion for the course participant because humans have only 12 ribs.
- During section 8, the instructor informs viewers that "the length [of the catheter] on a human casualty should be at least 2 1/2 inches if not 3 inches long to ensure placement within the thoracic cavity itself. In your animal model you will utilize a 1 1/4-inch catheter."
- During section 9 (*Tube Thoracostomy with Chest Tube Insertion*) the instructor again describes the difference between practicing the procedures on a live goat and performing them on a human casualty: **"Landmarks on your human casualty are**

**the fifth or sixth intercostal space . . . In your animal model you're going to again want to use the seventh or eighth intercostal space."**

- During section 11 (*Surgical Cricothyroidotomy*) the instructor informs course participants that **"only one student will be able to actually perform a true surgical cricothyroidotomy.** The rest of the students will have to go down the trachea and go through the cartilaginous rings. It's a little bit tougher to get through the cartilaginous rings . . ." <sup>21</sup>

The shortcomings of using goats and pigs for combat trauma training are further supported by a recent paper by Vance Y. Sohn, M.D., and colleagues. The paper describes Madigan Army Medical Center's (Tacoma, Wash.) "Tactical Combat Casualty Care" (TCCC) course, which involves subjecting goats to serious injuries, including amputation and induced hemorrhage. As highlighted in the article, since **"[t]he goat model is not ideal for venous access,"** many trainees are unable to properly secure intravenous (IV) access in the goats, causing some of the goats to suffer fatal hypovolemic shock and hypothermia. Because placing an IV is crucial to proper combat trauma training, this admission points out a glaring shortfall in the use of animals for TCCC training. Additionally, pigs are known to develop hyperthermia and a variety of abnormal physiological responses when given anesthesia, and also are susceptible to fatal ventricular fibrillation. Intubation training is fundamentally inapplicable to humans because of profoundly different airway anatomy in goats and pigs. <sup>22</sup>

As a result of these differences, it is impossible to mimic human wounds, skin injuries (e.g., burns), altered baseline and injury-related physiology, airway control, or correlations for head, facial and limb injuries, vascular access, and hemorrhage treatment in goats and pigs. Differences related to vascular anatomy, access, and hemorrhage may have particular importance, since uncontrolled hemorrhage is by far the major cause of preventable death for wounded Soldiers.

In order to respond to Soldiers' injuries, medical personnel should train in civilian trauma centers and use high-fidelity human patient simulators that mimic the vasculature and anatomy of an *adult human* instead of adapting the use of an improper training method (in this case, live goats or pigs) to the performance of lifesaving procedures.

### **3.3. Animal Welfare Concerns Are Inherent in the Current Use of Animals**

In 2005, Maj. E. Matt Ritter, M.D., and Col. Mark W. Bowyer, M.D., of the National Capital Area Medical Simulation Center and the Uniformed Services University of the Health Sciences (USUHS) Norman M. Rich Department of Surgery, noted that the use of animals for trauma training "raises ethical issues." <sup>23</sup> These ethical issues are evident in the descriptions of this training.

A portion of a Fort Sam Houston course is detailed in the Aug. 8, 2008, issue of the *San Antonio Express-News*. The reporter describes the scene:

Two combat medics hold the rear leg of an unconscious goat stretched out on a blue sheet atop the nylon mesh of an Army litter. Instructor Armand Fermin places a tree trimmer over the joint in the leg, closes it, applies pressure, and a 'crack' echoes inside the dimly lit tent . . . <sup>24</sup>

In a 2006 *New York Times* article, one Navy corpsman reported that he was charged with keeping an anesthetized pig alive for as long as possible after the animal was subjected to serious injuries, saying of the pig that, “they shot him twice in the face with a 9-millimeter pistol, and then six times with an AK-47 and then twice with a 12-gauge shotgun. And then he was set on fire.” The corpsman kept the pig alive in this condition for 15 hours.<sup>25</sup>

### **3.4. Superior Training Methods Exist**

At least three different approaches to combat trauma training are necessary because different types of skills and levels of knowledge are required of three distinct groups: physicians and physician assistants (the two groups of medical personnel for whom the appended trauma training film is most intended), medics and corpsmen, and Infantry. For example, it is not necessary or practical that Infantry know advanced surgical skills. Conducting military medical training in a tiered approach eliminates redundancy, optimizes logistics and the use of training resources, and improves skills acquisition.

#### **3.4.1. Physicians and Physician Assistants**

The most important elements of combat trauma training for physicians and physician assistants (PAs) are realism, human-specific injuries and treatments, volume of trauma exposure, and team building. All of these elements are readily provided by a strong focus on trauma center training, as well as a combination of medical simulation and human cadaver use.

The ideal trauma and casualty training method is exposure to real injuries in humans, such as that provided by the participation of U.S. military medical teams at high-volume trauma centers. The three major programs are the Army Trauma Training Center (ATTC) in Miami, the Navy Trauma Training Center in Los Angeles, and the Air Force Trauma Training Center in Baltimore. The ATTC has been described as providing “exposure to a high volume of traumatic injuries that closely mimic those seen on the battlefield.”<sup>26</sup>

These three military trauma center programs, and other military partnerships with Level I civilian trauma centers in major U.S. cities, provide skills training and critical training in triage, decision making, transport, operation in austere environments, and team building. As stated by DoD: “The ultimate goal of the Army Trauma Training Center is to ‘train teams to be a team.’”<sup>27</sup> Illustrating the relevance of experience in civilian trauma centers to battlefield trauma management, a recent article published in the *Journal of Trauma* stated that:

Civilian trauma training and civilian practice provides a significant portion of the background necessary to manage combat casualties . . . Trauma training for deployable military surgical teams at Level I trauma centers is justified.<sup>28</sup>

The success of this approach is touted in many military publications, and there appears to be a general consensus that trauma center training is the best preparation for battlefield medical care. As stated by U.S. Army COL (Dr.) David G. Burris, USUHS Surgery Department Chair: “The CTSC [DoD’s Combat Trauma Surgical Committee] has made significant strides partnering with civilian trauma training centers, whose caseloads match battlefield injuries.”<sup>29</sup>

The Air Force’s Center for Sustainment of Trauma and Readiness Skills (C-STARS) program exemplifies how effective trauma training can be achieved by combined use of simulators,

human cadavers, and civilian trauma centers. At centers in St. Louis, Cincinnati, and Baltimore, C-STARS courses teach chest tube insertion using simulators, fasciotomy using cadavers, and a number of other procedures using live human patients who enter trauma centers with severe injuries.

Shifting military combat trauma training away from the use of animals and toward hands-on training in civilian trauma centers will also help ameliorate the urgent need for more medical personnel in these facilities. According to the American College of Surgeons, the current national shortage of emergency medical personnel has forced trauma centers to close in Nevada, Florida, Mississippi, Pennsylvania, and West Virginia, while others have downgraded or reduced the services they offer.<sup>30</sup>

A recent study by the Advisory Board Company found that 57 percent of Level I trauma centers and 74 percent of Level II trauma centers report a problem with inadequate numbers of on-call physicians.<sup>31</sup> Civilian trauma centers are also threatened by a shortage of supporting medical personnel, such as nurses and nurse practitioners. In this way, embedding military physicians, PAs, and other medical personnel in civilian trauma centers yields benefits both to fallen troops and to civilians whose local trauma centers face staff shortages or closure.

The issues of fidelity and realism in combat trauma training can also be addressed by the use of a perfused cadaver model. Neurosurgeon Emad Aboud, M.D., has developed a model for teaching surgery and trauma skills that uses a human cadaver connected to reservoirs of artificial blood. The artificial blood is pumped through the cadaver to replicate blood circulation and hemorrhage in a human body. Numerous medical experts have endorsed Dr. Aboud's model as an effective training tool that could replace the use of animals in surgery and trauma training. Drs. Kemal Yücesoy, Mustafa Güvençer, and Salih Sayhan have written that "we can easily say that this model is a perfect model for surgical training."<sup>32</sup> Dr. Paul H. Young has written that Dr. Aboud's model could replace the use of live animals in trauma technical training.<sup>33</sup> Dr. Aboud's model was demonstrated at Fort Sam Houston on Feb. 17, 2009.

### **3.4.2. Medics and Corpsmen**

Since the 1996 publication of the landmark paper *Tactical Combat Trauma in Special Operations*, the training of U.S. military medics and corpsmen has been increasingly scenario-based and divergent from civilian trauma training programs such as Advanced Trauma Life Support (ATLS).<sup>34</sup> The re-creation of battlefield scenarios remains an integral element to the training of medics and corpsmen. However, for optimal combat trauma training, there are lessons to be learned from the civilian sector's increased use of nonanimal, human-based training methods.

The ideal training paradigm for medics and corpsmen combines simulation tools, immersive simulated environments, and civilian trauma center training. In this context, the use of live animals is inferior to simulation for specific skills training and inferior to trauma centers for human-specific training similar to the battlefield experience. Continued appropriate use of simulation, sustained efforts to develop and implement improved simulation tools, and expansion of the trauma center training initiative will best prepare our military medics and corpsmen to save the lives of our troops.

In a 2007 follow-up to his 1996 publication, retired U.S. Navy CAPT Frank K. Butler Jr., M.D., noted that live animals are used in military trauma training for “[e]stablishment of a surgical airway...application of tourniquets and hemostatic dressings, needle thoracostomy, chest tube insertion, and the use of direct pressure to stop severe bleeding.”<sup>35</sup> However, for all of these procedures there are superior human-based training methods.

According to a study published in the November 2002 edition of the *Journal of the American College of Surgeons*, study participants misplaced 30.2 percent of cricothyroidotomies (emergency surgical airway) when performing the procedure on live animals compared to only 3.6 percent when using human cadavers.<sup>36</sup> In addition, a study published in the February 2003 edition of *Anesthesiology* concludes that “practice on mannequins leads to reductions in cricothyroidotomy times and improvement in success rates.”<sup>37</sup>

In more than 90 percent of U.S. ATLS programs, Simulab’s TraumaMan System (Seattle, Wash.) is used in lieu of live animals. Cricothyroidotomy is a key component to the surgical skills portion of ATLS courses, and the TraumaMan System accurately represents the anatomy of the human trachea and pharynx. While Simulab’s human torso model would not be ideal for some combat trauma training procedures, it and other simulators such as Laerdal’s SimMan (Stavanger, Norway) and the Emergency Care Simulator, Human Patient Simulator, and iStan from Medical Education Technologies, Inc. (Sarasota, Fla.) are superior to the use of animals in preparing medics and corpsmen to respond to multiple battlefield injuries.

Management of hemorrhage, the most common cause of preventable battlefield death for wounded military personnel, can be taught using SimMan, the SimQuest Limb Hemorrhage Trauma Simulator (Silver Spring, Md.), and the HapMed limb simulator from CHI Systems, Inc. (Fort Washington, Pa.). The development of METI’s iStan, SimQuest’s simulator, and CHI Systems’ product were originally intended for and/or funded by the U.S. Army. In addition, the Army’s Research, Development, and Engineering Command has invested \$500,000 in FY 2009 for the expansion of CHI Systems’ work to include a tracheotomy (surgical airway) trainer.

Tension pneumothorax is the second leading cause of preventable death of troops on the battlefield and can be alleviated by inserting a needle into the chest cavity to cause decompression. Medics and corpsmen can accurately learn needle decompression using iStan and the Human Patient Simulator from METI, the TraumaMan System, SimMan, and other human-based simulators, avoiding the confusing anatomical variances described above and in the appended trauma training film. Treatment of fractures and amputations can be taught using SimMan, as well as the Human Patient Simulator and Emergency Care Simulator from METI. Burn wound management can be taught using the Medical Readiness Trainer from MEDSMART, Inc. (Ann Arbor, Mich.).

The U.S. Army’s own Combat Trauma Patient Simulator has been described as “simulating, replicating, and assessing battlefield injuries by type and category such as hemorrhaging, fractures, amputations, and burns; monitoring the movement of casualties on the battlefield; capturing the time of patient diagnosis and treatment; comparing interventions and outcomes at each military healthcare service delivery level.”<sup>38</sup>

Several other military simulation training tools are detailed in a seminal 2005 review article authored by Maj. Ritter and Col. Bowyer.<sup>39</sup> In criticizing the use of live animals for trauma

and casualty training, Ritter and Bowyer noted that animals are “poor surrogates for human anatomy” and that their use does “not [allow] for repetitive practice.”<sup>40</sup>

Task simulators and human patient simulators are most effectively used in conjunction with immersive environments that recreate battlefield scenarios, including the sounds and smells of combat. The U.S. military has embraced these simulation environments and would benefit from expansion of their use, allowing medics to better prepare for the first prong of proper combat trauma training—Care Under Fire. With the consolidation of most U.S. military medic and corpsman training at Fort Sam Houston in San Antonio in 2011, all branches will have the opportunity to make this training uniform and superior to the current model. Fort Sam Houston currently utilizes immersive battlefield simulation training, and this lifelike method could be expanded to the Air Force and Navy.

Medics and corpsmen also benefit from training in civilian trauma centers. As noted above, Level I and II trauma centers nationwide are in need of nonphysician medical personnel. While medics and corpsmen could serve much-needed roles at the established Army, Navy, and Air Force Trauma Training Centers, they have also proven to be valuable additions to other Level I and II trauma centers. In 2000, Navy, Army, and Air Force medics and corpsmen working in Houston’s Ben Taub General Hospital assisted with many of the facility’s 3,000-plus annual casualties (35 percent of which involved penetrating injuries).<sup>41</sup> According to Hospital Corpsman First Class Scott Eason, who served at Ben Taub in 1999 and 2000: “When it comes down to it, we are training in an environment that is the closest thing to a wartime setting.”<sup>42</sup>

While embedding the large number of medics and corpsmen in civilian trauma centers raises logistical issues (in the Army alone, more than 8,000 medics are trained each year), the need for real-life experience with human patients in a frenzied environment is undeniable. Work in civilian trauma centers hones the procedural and decision-making skills of medics and corpsmen while increasing their confidence to transfer those skills to the battlefield.

### **3.4.3. Infantry**

Army and Marine Infantry first responder training involves a smaller skill set learned in a shorter amount of time, compared with the skills required for physicians, medics, and corpsmen. In the absence of a medic or corpsman, an Infantryman’s job is to control hemorrhaging, stabilize soldiers who have sustained injuries, and generally render care at the scene of the injury—likely while still under hostile fire. Because of the large number of Infantry, the nature of their required medical training, and logistical issues regarding certification, embedding these military personnel in civilian trauma centers is not practical.

Optimal first responder training for Infantry includes the use of simulators such as Laerdal’s SimMan, CHI Systems’ HapMed limb simulator, and/or other simulators described above. These human anatomy-appropriate teaching methods can be used in conjunction with the previously mentioned simulation of austere battlefield environments.

## **4. The Current Animal Use Violates the DoD’s Joint Regulation on Animal Welfare**

The U.S. military’s continued use of animals in chemical casualty care training and combat trauma training courses constitutes a clear violation of Army Regulation 40-33, Secretary of the Navy Instruction 3900.38C, and Air Force Manual 40-401(I), *The Care and Use of*

*Laboratory Animals in DOD Programs* (Joint Regulation). The Joint Regulation implements Department of Defense Directive 3216.1, which applies the mandates of the federal Animal Welfare Act to all DoD activities involving animals. See Directive 3216.1 ¶ 4.1, Enc. 3.

The Joint Regulation prohibits the use of nonhuman primates for “[i]nfllicting wounds with any type of weapon(s) to conduct training in surgical or other medical treatment procedures.”<sup>43</sup> Neither the Joint Regulation nor the DoD Dictionary of Military and Associated Terms defines “wound,”<sup>44</sup> but Dorland’s Medical Dictionary defines “wound” as “an injury or damage.”<sup>45</sup> The DoD dictionary defines “injury” to include “[a]cute poisonings...resulting from exposure to a toxic or poisonous substance are also classed as injuries.”<sup>46</sup> Black’s Law Dictionary defines a “weapon” as “[a]n instrument used or designed to be used to injure or kill someone.”<sup>47</sup> As set forth above, the MCBC and FCBC courses use toxic levels of physostigmine, a nerve agent analog, to induce cholinergic crisis in vervet monkeys, thereby inflicting severe bodily injury. This use of a weapon to wound nonhuman primates violates subparagraph 5h of the Joint Regulation.

The Joint Regulation also requires that “[a]lternative methods to the use of animals must be considered and used if such alternatives produce scientifically valid or equivalent results to attain the research, education, training, and testing objectives.”<sup>48</sup> As set forth above, the use of live nonhuman primates for chemical casualty training is specifically prohibited by the Joint Regulation. Nevertheless, adequate alternatives exist, as noted in section 2. Similarly, the use of goats and pigs in combat trauma training violates the Joint Regulation because scientifically valid alternatives are readily available, as described in section 3.

## 5. Conclusion

Department of Defense components subject to the Joint Regulation must employ alternative methods to animal use whenever the results would provide “scientifically valid or equivalent results.” Because widely validated and accepted nonanimal alternatives for combat trauma training and chemical casualty care courses exist, there is no adequate or good faith justification for the use of live animals for these training purposes.

To achieve consistent and meaningful enforcement that comports with the language, intent, and mandates of the Joint Regulation, the Assistant Secretary of Defense for Health Affairs, the Surgeon General of the Army, the Command Surgeon of Special Operations Command, and the Commander of Army Medical Research Institute of Chemical Defense must exercise their oversight powers to ensure that DoD components replace the use of animals in combat trauma training and chemical casualty care courses, whether such use occurs in military programs or is performed by contractors.

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