



# USDA-APHIS-Animal Care



ANIMAL WELFARE COMPLAINT			
Complaint No. AC20-071	Date Entered: 3-Jan-20	Processed By: AVB	
Referred To: Cohen / White-Shim		Reply Due: 4-Feb-20	
Facility or Person Complaint Filed Against			
Name: University of Virginia		Customer No.: 495	License No.: 52-R-0011
Address: PO Box 400301		Email Address:	
City: Charlottesville	State: VA	Phone No.: (434) 924-3606	
Complainant Information			
Name: (b) (6), (b) (7)(C), (b) (7)(D)		Organization: (b) (6), (b) (7)(C), (b) (7)(D) (b) (6), (b) (7)(C), (b) (7)(D)	
Address: (b) (6), (b) (7)(C), (b) (7)(D)		Email Address: (b) (6), (b) (7)(C), (b) (7)(D)	
City: (b) (6), (b) (7)(C), (b) (7)(D)	State: (b) (6)	Phone No.: (b) (6), (b) (7)(C), (b) (7)(D)	
How was the Complaint received? Email			
Details of Complaint: SEE ATTACHED			
Results: A focused inspection was conducted on January 9, 2020. The protocol of concern in the complaint was reviewed by the inspector and determined the IACUC had approved the protocol in accordance with the regulations. No non-compliant items were identified during the inspection.			
Application Kit Provided: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
Inspector: Kimberley Cohen, DVM, DACLAM		Date: 9-Jan-20	
Reviewed By: Lynne White-Shim, Temporary SACS		Date: 01/09/20	



January 03, 2020

Animal and Plant  
Health Inspection  
Service

Animal Care  
4700 River Road  
Riverdale, MD  
20737

(b) (6), (b) (7)(C), (b) (7)(D)

Dear Complainant:

Thank you for your correspondence dated 12-Dec-19. We are reviewing your concerns and assigned tracking number AC20-071. Please allow us enough time (30 to 60 days) to thoroughly look into your concerns. You may submit a request to the Animal and Plant Health Inspection Service (APHIS) Freedom of Information Act (FOIA) office to obtain any publically available information regarding our review.

FOIA requests can be submitted three ways:

1. Web Request Form: <https://efoia-pal.usda.gov/App/Home.aspx>
2. Fax: (301) 734-5941
3. U.S. Mail:  
USDA-APHIS-FOIA  
4700 River Road, Unit 50  
Riverdale, MD 20737

Should you have any questions regarding the APHIS FOIA process or need assistance using the Web Request Form **please contact the APHIS FOIA office at 301-851-4102.**

Animal Care is a program within the U.S. Department of Agriculture (USDA) that directs activities to ensure compliance with and enforcement of the Animal Welfare Act and the Horse Protection Act. Animal Care establishes standards of humane treatment for regulated animals and monitors and achieves compliance through inspections, enforcement, education, and cooperative efforts under the Acts.

Please be assured that we will look into your concern(s) and take appropriate action(s).

Thank you for your interest into the humane treatment of these animals.

Sincerely,

(b) (6), (b) (7)(C)

Betty Goldentyer  
Associate Deputy Administrator  
Animal Care

## Benson, Amy V - APHIS

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**From:** Gibbens, Robert - APHIS  
**Sent:** Thursday, December 12, 2019 9:21 AM  
**To:** APHIS-AnimalCare  
**Subject:** Fwd: APHIS complaint re: University of Virginia  
**Attachments:** 2019-12-12 UVA APHIS Complaint Final.pdf; U.S. surgery residency survey (2019-12-02).pdf; ADD II - Key Simulation Devices for Surgery Training.pdf

Please log in and handle as a complaint.

Get [Outlook for iOS](#)

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**From:** (b) (6), (b) (7)(C), (b) (7)(D)  
**Sent:** Thursday, December 12, 2019 7:19:05 AM  
**To:** Gibbens, Robert - APHIS <robert.m.gibbens@usda.gov>  
**Subject:** APHIS complaint re: University of Virginia

Dear Dr. Gibbens:

Attached and pasted below you will find a complaint from (b) (6), (b) (7)(C), (b) (7)(D) regarding the use of live pigs for surgery resident training at the University of Virginia. We request that APHIS investigate this animal use, direct the university to end such use, and apply penalties as justified.

Thank you for your consideration.

(b) (6), (b) (7)(C), (b) (7)(D)



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Dec. 12, 2019

Robert Gibbens, DVM  
Director, Animal Welfare Operations  
USDA/APHIS/Animal Care  
2150 Centre Ave.  
Building B, Mailstop 3W11  
Fort Collins, CO 80526-8117

Submitted by email (Robert.M.Gibbens@aphis.usda.gov)

**Re: Use of Live Animals for General Surgery Residency Training at the University of Virginia**

Dear Dr. Gibbens:

(b) (6), (b) (7)(C), (b) (7)(D) requests that the Animal and Plant Health Inspection Service (APHIS) investigate the use of live animals for training at the University of Virginia (UVA) in Charlottesville. UVA uses animals to teach procedures to general surgery residents, despite the widespread availability and implementation of nonanimal training methods that are educationally superior and compliant with the Animal Welfare Act.

According to documents obtained by (b) (6), (b) (7)(C), (b) (7)(D) under the Virginia Freedom of Information Act, the animal use protocol for the “Surgical Training for General Surgery Residents” lab is approved to use up to 32 pigs per year. Some of the procedures performed include:

- Open bowel resection and anastomosis (an incision is made in the lower abdomen to remove a damaged portion of the bowel and a surgical connection is made to rejoin the intestines with sutures or staples)
- Laparoscopic splenectomy (several incisions are made in the abdomen to insert surgical tools and a lighted camera in order to remove the spleen)
- Open nephrectomy (an incision is made in the abdomen and a kidney is removed)
- Open liver resection (an incision is made in the abdomen and all or a portion of the liver is removed)

UVA’s animal use is at odds with the current standards of practice in general surgery residency training in the United States. According to an ongoing (b) (6), (b) (7)(C), (b) (7)(D) survey, 73 percent of general surgery residencies (154 of 212) in the United States exclusively use nonanimal methods to train residents (see Addendum I). In fact, all other Virginia programs use only human-based training methods—including Carilion Clinic-Virginia Tech, Eastern Virginia Medical School, Inova Fairfax Medical Campus, Naval Medical Center Portsmouth, and Virginia Commonwealth University.

Under the Animal Welfare Act, UVA meets the statutory definition of a “research facility” and is therefore required to comply with the statute’s regulations and standards. As part of this required compliance, any use of live animals for research, testing, or training must be approved by UVA’s IACUC. UVA is currently registered with the U.S. Department of Agriculture (USDA) under certification number 52-R-0011.

(b) (6), (b) (7)(C), (b) (7)(D) believes that inadequate oversight by UVA’s IACUC is responsible for the approval and ongoing use of live animals in its general surgery residency program. The specific regulatory violations are the following:

### **1. UVA’s Justification of Animal Use is Insufficient Because Alternatives Exist**

Section 2143 of the Animal Welfare Act and C.F.R. Title 9, Section 2.31(d)(1)(i, ii) of the Animal Welfare Act’s implementing regulations require that the principal investigator (PI)—including course instructors—consider alternatives to procedures that may cause more than momentary or slight pain or distress to any animal used for research or educational purposes.

**We believe that the PI did not meet this requirement because justification of animal use for general surgery residency training is not possible in view of the validation and widespread implementation of numerous nonanimal training methods. Having not provided objective evidence to support animal use in view of these alternatives, this requirement of the Animal Welfare Act was not met.**

A proper alternatives search would have revealed nonanimal methods for the training of surgery residents and an abundance of peer-reviewed literature demonstrating the equivalence or superiority of simulation-based surgery training compared to animal use. All surgery skills, including bowel resection and anastomosis,

nephrectomy, splenectomy, liver resection, and hernia repair, can be taught using human-based methods, such as laparoscopic simulators, virtual reality simulators, human cadavers, partial task trainers, and human-patient simulators. Over the last three decades, surgical simulation has evolved with advances in technology and an imperative to replace the use of animals in surgery training courses.

A recent study funded by the U.S. Army compared the physiological stress response in trainees using medical simulators versus live animals. The study, which was presented at the annual meeting of the American College of Chest Physicians on Oct. 10, 2018, in San Antonio, found that there were no significant differences for peak stress response between the two methods and determined that “synthetic models can produce a stress response equivalent to that of live tissue during simulation training.”<sup>[1]</sup>

There are many validated and widely implemented nonanimal simulation methods available to train surgery residents, including Surgical Science’s LapSim, a virtual reality laparoscopic simulator that can be used to teach nephrectomy, inguinal hernia repair, suturing and anastomosis, cholecystectomy, appendectomy, hysterectomy, lobectomy, and bariatric procedures. The LAP Mentor by 3D Systems is a laparoscopic surgical simulator with advanced haptics and features a library of training modules, including basic and advanced suturing, incisional and inguinal hernia, nephrectomy, cholangiography, cholecystectomy, gastric bypass, lobectomy, hysterectomy, appendectomy, and Nissen fundoplication. CAE Healthcare’s LapVR Surgical Simulator allows trainees to develop proficiency in minimally invasive surgery skills by replicating laparoscopic procedures with haptic technology. LapVR can be used to learn techniques such as suturing, knot tying, and performing appendectomy, cholecystectomy, and bowel inspection and resection or repair.

Maximum Fidelity Surgical Simulations’ EnvivoPC uses state-of-the-art technology—including simulated blood and a pump—to create a perfused cadaver that mimics heart function and circulation while allowing for hands-on training in procedures involving active bleeding. EnvivoPC can be used to perform a variety of surgical procedures, including bowel resection and anastomosis, nephrectomy, splenectomy, liver resection, and ventral and para-esophageal hernia repair.

Another example of these human-based methods is Simulab’s TraumaMan System, a realistic anatomical human body simulator with lifelike skin, subcutaneous fat, and muscle. The TraumaMan System can be used to replace the use of live animals for numerous procedures, including cricothyroidotomy, pericardiocentesis, chest tube placement, diagnostic peritoneal lavage, needle decompression, pneumothorax drainage, tracheostomy, and intravenous cutdown. **Simulab also offers a Surgical Abdomen for TraumaMan (or as a stand-alone trainer), that features simulated pumping blood and can be used for both open and laparoscopic procedures, including repair of a nicked or lacerated aorta, renal artery, and kidney, cholecystectomy, and options to build individualized training modules. The TraumaMan System is endorsed by the American College of Surgeons for trauma training and is used by a large number of ATLS programs.**

Addendum II presents a sampling of key training devices available to replace animal use in UVA’s general surgery residency training.

In addition, UVA already has a state-of-the-art facility—the Medical Simulation Center—which offers a range of high-fidelity mannequins, laparoscopic trainers, and partial task trainers that could provide the simulation capabilities to replace the use of animals in the general surgery residency.

## **2. The Use of Animals for General Surgery Residency Training is Not “Unavoidable”**

The Animal Welfare Act also requires that activities involving animals be designed to “assure that discomfort and pain to animals will be limited to that which is unavoidable for the conduct of scientifically valuable research.” 9 C.F.R. § 2.31(e)(4).

**We believe that this requirement was not met by the PI because of the widespread availability of validated simulators and the fact that 73 percent of surveyed U.S. general surgery residency programs do not use live animals. This clearly demonstrates that such use of live animals is not “unavoidable.”**

**3. UVA’s IACUC is Failing to Properly Oversee Animal Use**

Section 2143 of the Animal Welfare Act and Title 9, Section 2.31(d)(1)(i, ii) of the Animal Welfare Act’s implementing regulations require that the IACUC enforce the requirements described in items 1 and 2 above and thereby determine that the proposed activities are in accordance with the Animal Welfare Act and C.F.R Title 9, Section 2.31(d).

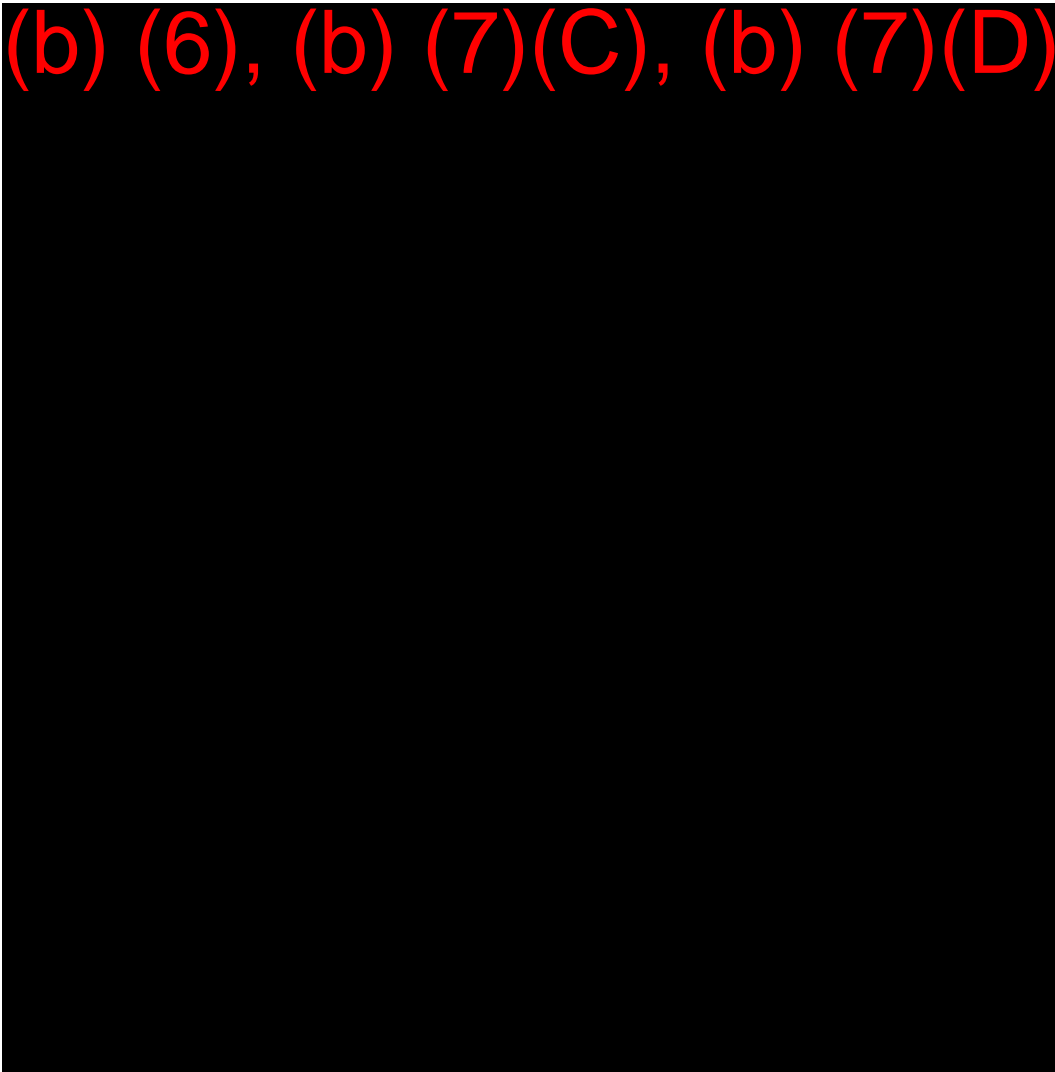
**We believe that these requirements were not met by UVA’s IACUC because the animal use protocol was approved despite the violations described in items 1 and 2 above. Thus, the (b) (6), (b) (7)(C), (b) (7)(D) alleges inadequate institutional oversight by UVA’s IACUC.**

Accordingly, (b) (6), (b) (7)(C), (b) (7)(D) requests that APHIS investigate this matter to find UVA and its IACUC in violation of the Animal Welfare Act and its implementing regulations as detailed above, and order correction and appropriate penalties.

Thank you for your attention.

Sincerely,

(b) (6), (b) (7)(C), (b) (7)(D)



## Addendums

1. Animal Use in Allopathic and Osteopathic General Surgery Residency Programs in the United States: An Ongoing Survey
2. Simulation for General Surgery Residency Training: A Sampling of Key Devices

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[\[1\]](#) Keller J., Hart D., Rule G., Bonnett T., Sweet R. *The Physiologic Stress Response of Learners During Critical Care Procedures: Live Tissue vs. Synthetic Models*. Poster presentation at CHEST Annual Meeting 2018, San Antonio, Tex.

(b) (6), (b) (7)(C), (b) (7)(D)

Dec. 12, 2019

Robert Gibbens, DVM  
Director, Animal Welfare Operations  
USDA/APHIS/Animal Care  
2150 Centre Ave.  
Building B, Mailstop 3W11  
Fort Collins, CO 80526-8117

Submitted by email (Robert.M.Gibbens@aphis.usda.gov)

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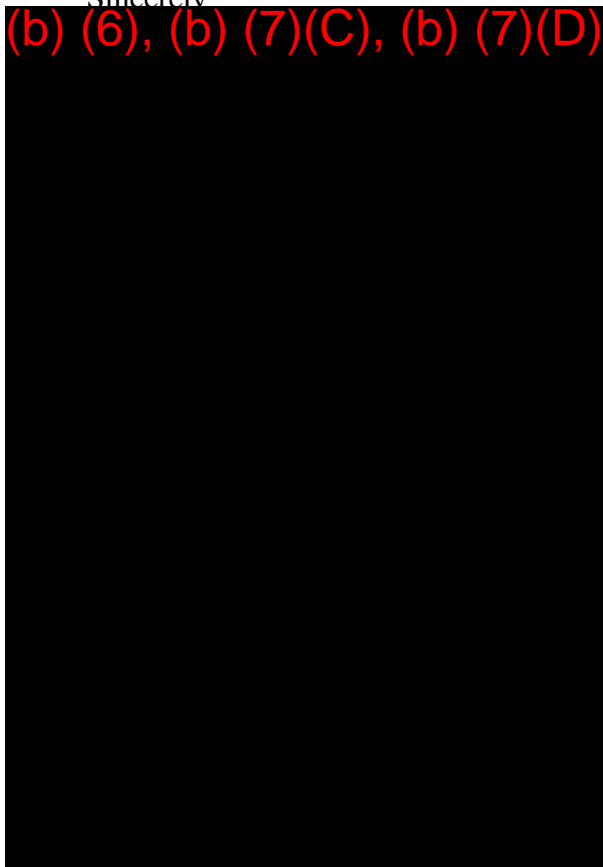
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Thank you for your attention.

Sincerely

(b) (6), (b) (7)(C), (b) (7)(D)



(b) (6), (b) (7)(C), (b) (7)(D)



#### Addendums

- I. Animal Use in Allopathic and Osteopathic General Surgery Residency Programs in the United States: An Ongoing Survey
- II. Simulation for General Surgery Residency Training: A Sampling of Key Devices

(b) (6), (b) (7)(C), (b) (7)(D)

**Animal Use in Allopathic and Osteopathic (†) General Surgery Residency  
Programs in the United States: An Ongoing Survey**

Updated: December 2, 2019

**Programs Using Live Animals (58)**

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- AdventHealth Orlando – Orlando, Fla.
- (†) Arnot Ogden Medical Center – Elmira, N.Y.
- (†) Ascension Macomb-Oakland Hospital – Warren, Mich.
- Ascension Providence/Michigan State University College of Human Medicine (MSUCHM) – Southfield, Mich.
- Beaumont Health (Royal Oak) – Royal Oak, Mich.
- (†) Campbell University – Fayetteville, N.C.
- Creighton University School of Medicine/Maricopa Medical Center (Phoenix) – Phoenix, Ariz.
- Creighton University School of Medicine/St. Joseph's Medical Center (Phoenix) – Phoenix, Ariz.
- Danbury Hospital – Danbury, Conn.
- George Washington University – Washington, D.C.
- (†) Henry Ford Wyandotte Hospital – Wyandotte, Mich.
- Jackson Memorial Hospital/Jackson Health System – Miami, Fla.
- Johns Hopkins University – Baltimore, Md.
- Kaiser Permanente Southern California (Los Angeles) – Los Angeles, Calif.
- Loma Linda University Health Education Consortium – Loma Linda, Calif.
- Los Angeles County-Harbor-UCLA Medical Center – Torrance, Calif.
- Loyola University Medical Center – Maywood, Ill.
- Massachusetts General Hospital – Boston, Mass.
- McGaw Medical Center of Northwestern University – Chicago, Ill.
- (†) Medical City North Texas Consortium Graduate Medical Education – Fort Worth, Texas
- Medical College of Georgia – Augusta, Ga.
- Medical University of South Carolina – Charleston, S.C.
- Morehouse School of Medicine – Atlanta, Ga.
- Naval Medical Center (San Diego) – San Diego, Calif.
- New Hanover Regional Medical Center – Wilmington, N.C.
- (†) New York University (NYU) School of Medicine (Brooklyn) – Brooklyn, N.Y.
- Oregon Health & Science University – Portland, Ore.
- Orlando Health – Orlando, Fla.
- Prisma Health-Upstate/University of South Carolina School of Medicine Greenville – Greenville, S.C.
- Riverside University Health System/University of California Riverside – Moreno Valley, Calif.
- (†) Sparrow Hospital – Lansing, Mich.
- Spartanburg Regional Healthcare System – Spartanburg, S.C.
- Spectrum Health/Michigan State University – Grand Rapids, Mich.
- St. Agnes Healthcare – Baltimore, Md.
- Stamford Hospital/Columbia University College of Physicians and Surgeons – Stamford, Conn.

- St. Mary's Hospital (Waterbury) – Waterbury, Conn.
- TriHealth (Good Samaritan Hospital) – Cincinnati, Ohio
- Tulane University – New Orleans, La.
- University of Alabama Medical Center – Birmingham, Ala.
- University of Arizona College of Medicine (Tucson) – Tucson, Ariz.
- University of California Davis Health – Sacramento, Calif.
- University of California (San Diego) Medical Center – La Jolla, Calif.
- University of Colorado – Aurora, Colo.
- University of Connecticut – Farmington, Conn.
- University of Florida – Gainesville, Fla.
- University of Kansas School of Medicine – Kansas City, Kan.
- University of Louisville School of Medicine – Louisville, Ky.
- University of Maryland – Baltimore, Md.
- University of Mississippi Medical Center – Jackson, Miss.
- University of Puerto Rico – San Juan, Puerto Rico
- University of South Alabama – Mobile, Ala.
- University of Southern California/LAC+USC Medical Center – Los Angeles, Calif.
- University of Tennessee College of Medicine at Chattanooga – Chattanooga, Tenn.
- University of Texas Health Science Center at Houston – Houston, Texas
- University of Virginia Medical Center – Charlottesville, Va.
- University of Washington – Seattle, Wash.
- Wake Forest University School of Medicine – Winston-Salem, N.C.
- Western Michigan University Homer Stryker MD School of Medicine – Kalamazoo, Mich.

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### **Programs Using Only Nonanimal Methods (154)**

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#### **Alabama (1)**

- Brookwood Baptist Health – Birmingham

#### **Arizona (5)**

- Abrazo Health Network – Glendale
- (†) HonorHealth John C. Lincoln Medical Center – Phoenix
- Mayo Clinic College of Medicine and Science (Arizona) – Phoenix
- (†) Midwestern University Osteopathic Postdoctoral Training Institute – Mesa
- University of Arizona College of Medicine (Phoenix) – Phoenix

#### **Arkansas (1)**

- University of Arkansas for Medical Sciences – Little Rock

#### **California (11)**

- Arrowhead Regional Medical Center/Kaiser Permanente (Fontana) – Colton
- Huntington Memorial Hospital – Pasadena
- Kaweah Delta Health Care District (KDHCD) – Visalia
- Riverside Community Hospital/University of California Riverside School of Medicine – Riverside
- San Joaquin General Hospital – French Camp
- Santa Barbara Cottage Hospital – Santa Barbara
- Stanford Health Care-Sponsored Stanford University – Stanford
- University of California Los Angeles David Geffen School of Medicine/UCLA Medical Center – Los Angeles

- University of California San Francisco (East Bay) – Oakland
- University of California (San Francisco)/Fresno – Fresno
- University of California San Francisco – San Francisco

#### **Colorado (4)**

- HealthONE Sky Ridge Medical Center – Lone Tree
- (†) HealthONE/Swedish Medical Center – Englewood
- (†) Kansas City University of Medicine and Biosciences-GME Consortium/St. Anthony Hospital – Lakewood
- Saint Joseph Hospital – Denver

#### **Connecticut (2)**

- Quinnipiac University Frank H. Netter MD School of Medicine (Waterbury Hospital) – Waterbury
- Yale-New Haven Medical Center – New Haven

#### **Delaware (1)**

- Christiana Care Health Services – Newark

#### **District of Columbia (2)**

- Howard University – Washington
- MedStar Health/Georgetown-Washington Hospital – Washington

#### **Florida (16)**

- Cleveland Clinic (Florida) – Weston
- Florida Atlantic University Charles E. Schmidt College of Medicine – Boca Raton
- Florida State University College of Medicine – Tallahassee
- HCA West Florida GME Consortium/Brandon Regional Hospital – Brandon
- HCA West Florida GME Consortium/Regional Medical Center Bayonet Point – Hudson
- Kendall Regional Medical Center – Miami
- Larkin Community Hospital – South Miami

- Mayo Clinic College of Medicine and Science (Jacksonville) – Jacksonville
- Memorial Healthcare System (Hollywood) – Pembroke Pines
- Mount Sinai Medical Center of Florida – Miami Beach
- University of Central Florida/HCA GME Consortium (Greater Orlando) – Orlando
- University of Central Florida/HCA GME Consortium (Ocala) – Ocala
- University of Florida College of Medicine Jacksonville – Jacksonville
- University of Miami Hospital and Clinics/Holy Cross Hospital – Fort Lauderdale
- University of Miami/JFK Medical Center Palm Beach Regional GME Consortium – Atlantis
- University of South Florida Morsani – Tampa

#### **Georgia (5)**

- Emory University School of Medicine – Atlanta
- Dwight David Eisenhower Army Medical Center – Fort Gordon
- Medical Center of Central Georgia/Mercer University School of Medicine – Macon
- Memorial Health-University Medical Center/Mercer University School of Medicine (Savannah) – Savannah
- Northeast Georgia Medical Center – Gainesville

#### **Hawaii (1)**

- University of Hawaii – Honolulu

#### **Illinois (10)**

- Carle Foundation Hospital – Urbana
- (†) Franciscan Health Olympia Fields – Olympia Fields
- Presence Saint Joseph Hospital (Chicago) – Chicago
- Rush University Medical Center – Chicago
- Southern Illinois University – Springfield



- University of Chicago – Chicago
- University of Illinois College of Medicine at Chicago – Chicago
- University of Illinois College of Medicine at Chicago (Metropolitan Group) – Chicago
- University of Illinois College of Medicine at Chicago (Mount Sinai) – Chicago
- University of Illinois College of Medicine at Peoria – Peoria

#### **Indiana (1)**

- St. Vincent Hospitals and Health Care Center – Indianapolis

#### **Iowa (2)**

- Central Iowa Health System (Iowa Methodist Medical Center) – Des Moines
- Iowa Medical Education Collaborative – Des Moines

#### **Kansas (2)**

- Research Medical Center/Menorah Medical Center – Overland Park
- University of Kansas (Wichita) – Wichita

#### **Kentucky (1)**

- University of Kentucky College of Medicine (Bowling Green) – Bowling Green

#### **Louisiana (2)**

- Louisiana State University – New Orleans
- Louisiana State University (Shreveport) – Shreveport

#### **Maine (1)**

- Maine Medical Center – Portland

#### **Maryland (4)**

- Anne Arundel Medical Center – Annapolis
- MedStar Health (Baltimore) – Baltimore
- National Capital Consortium – Bethesda
- Sinai Hospital of Baltimore – Baltimore

#### **Massachusetts (10)**

- Berkshire Medical Center – Pittsfield
- (†) Berkshire Medical Center – Pittsfield
- Beth Israel Deaconess Medical Center – Boston
- Boston University Medical Center – Boston
- Brigham and Women's Hospital – Boston
- Lahey Hospital and Medical Center – Burlington
- St. Elizabeth's Medical Center – Boston
- Tufts Medical Center – Boston
- University of Massachusetts Medical School/Baystate Medical Center – Springfield
- University of Massachusetts – Worcester

#### **Michigan (14)**

- Ascension Genesys Hospital – Grand Blanc
- Ascension St. John Hospital – Detroit
- (†) Beaumont Health (Farmington Hills) – Farmington Hills
- Beaumont Health (Trenton and Dearborn) – Trenton
- Detroit Medical Center Corporation – Detroit
- Detroit Medical Center/Wayne State University – Detroit
- Henry Ford Allegiance Health – Jackson
- Henry Ford Hospital/Wayne State University – Detroit
- (†) Henry Ford Macomb Hospital – Clinton Township
- (†) McLaren Health Care/Greater Lansing/Michigan State University – Lansing
- McLaren Health Care/Macomb/Michigan State University – Mount Clemens
- St. Joseph Mercy Ann Arbor – Ypsilanti
- St. Joseph Mercy-Oakland – Pontiac
- University of Michigan Health System – Ann Arbor

#### **Minnesota (1)**

- University of Minnesota – Minneapolis



**Missouri (2)**

- (†) Kansas City University of Medicine and Biosciences-GME Consortium /St. Mary's Medical Center – Blue Springs
- University of Missouri-Kansas City School of Medicine – Kansas City

**Nebraska (1)**

- Creighton University School of Medicine (Omaha) – Omaha

**Nevada (1)**

- Valley Health System – Las Vegas

**New Hampshire (1)**

- Mary Hitchcock Memorial Hospital/Dartmouth-Hitchcock Program – Lebanon

**New Jersey (12)**

- Atlantic Health (Morristown) – Morristown
- Hackensack University Medical Center – Hackensack
- (†) Hackensack University Medical Center (Palisades) – North Bergen
- Hoboken University Medical Center – Bayonne
- Inspira Health Network – Vineland
- Jersey Shore University Medical Center – Neptune City
- Monmouth Medical Center – Long Branch
- (†) Rowan School of Osteopathic Medicine/Jefferson Health/Virtua Our Lady of Lourdes Hospital – Stratford
- Rutgers New Jersey Medical School – Newark
- Rutgers Robert Wood Johnson Medical School – New Brunswick
- St. Barnabas Medical Center – Livingston
- (†) St. Joseph's University Medical Center – Paterson

**New Mexico (1)**

- University of New Mexico School of Medicine – Albuquerque

**New York (6)**

- (†) Flushing Hospital Medical Center – Flushing
- Icahn School of Medicine at Mount Sinai (South Nassau) – Oceanside
- Lincoln Medical and Mental Health Center – Bronx
- SUNY Health Science Center at Brooklyn – Brooklyn
- (†) Wyckoff Heights Medical Center – Brooklyn
- Zucker School of Medicine at Hofstra/Northwell at Lenox Hill Hospital – New York

**North Carolina (3)**

- Mountain Area Health Education Center – Asheville
- University of North Carolina Hospitals – Chapel Hill
- Vidant Medical Center/East Carolina University – Greenville

**North Dakota (1)**

- University of North Dakota – Grand Forks

**Ohio (3)**

- Jewish Hospital of Cincinnati – Cincinnati
- Kettering Health Network – Dayton
- (†) Mercy St. Vincent Medical Center – Toledo

**Oklahoma (2)**

- (†) Oklahoma State University Center for Health Sciences – Tulsa
- University of Oklahoma Health Sciences Center – Oklahoma City

**Oregon (1)**

- Samaritan Health Services (Corvallis) – Corvallis

**Pennsylvania (4)**

- Lehigh Valley Health Network/University of South Florida College of Medicine – Allentown
- Main Line Health System/Lankenau Medical Center – Wynnewood
- St. Luke's Hospital – Bethlehem

- University of Pittsburgh Medical Center (UPMC) Medical Education (Mercy) – Pittsburgh

#### **Rhode Island (1)**

- Brown University – Providence

#### **South Carolina (2)**

- Grand Strand Regional Medical Center – Myrtle Beach
- Prisma Health-Midlands/University of South Carolina School of Medicine (Columbia) – Columbia

#### **South Dakota (1)**

- University of South Dakota School of Medicine – Sioux Falls

#### **Texas (3)**

- University of Texas Health Science Center at Tyler – Tyler
- University of Texas Medical Branch Hospitals – Galveston
- University of Texas Rio Grande Valley/Doctors Hospital at Renaissance – Edinburg

#### **Utah (1)**

- University of Utah Health – Salt Lake City

#### **Vermont (1)**

- University of Vermont Medical Center – Burlington

#### **Virginia (5)**

- Carilion Clinic-Virginia Tech Carilion School of Medicine – Roanoke
- Eastern Virginia Medical School – Norfolk
- Inova Fairfax Medical Campus/Inova Fairfax Hospital for Children – Falls Church
- Naval Medical Center (Portsmouth) – Portsmouth
- Virginia Commonwealth University Health System – Richmond

#### **Washington (3)**

- St. Joseph's Hospital – Tacoma

- Swedish Medical Center/First Hill – Seattle
- Virginia Mason Medical Center – Seattle

#### **West Virginia (1)**

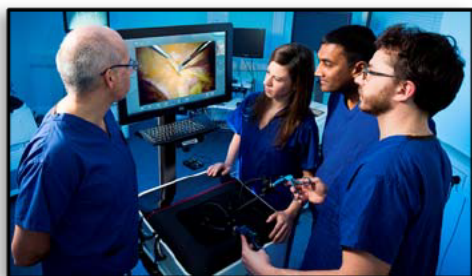
- Charleston Area Medical Center/West Virginia University (Charleston Division) – Charleston

(b) (6), (b) (7)(C), (b) (7)(D)

## Simulation for General Surgery Residency Training: A Sampling of Key Devices

Updated: Nov. 25, 2019

Over the last three decades, surgical simulation has evolved with advances in technology and an imperative to replace the use of animals in medical training courses. All surgery skills can be taught using human-relevant methods, such as laparoscopic simulators, virtual reality simulators, human cadavers, human-patient simulators, and partial task trainers. These methods allow trainees to improve their skills through iterative learning and repetitive practice. In this document we highlight only a few of the many simulation devices available for this field.



### **LAP Mentor**

*3D Systems (formerly Symbionix)*

LAP Mentor is a virtual reality simulator with haptic feedback that allows for trainees to practice a variety of techniques, from essential laparoscopic skills to advanced procedures. LAP Mentor can be used to teach including basic and advanced suturing, incisional and inguinal hernia, nephrectomy, cholangiography, cholecystectomy, gastric bypass, lobectomy, hysterectomy, appendectomy, and Nissen fundoplication.



### **LapSim**

*Surgical Science*

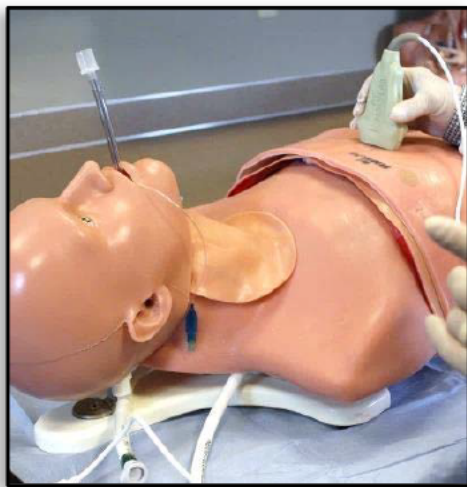
LapSim is a virtual reality laparoscopic simulator that features an optional haptic system with advanced force feedback technology. LapSim can be used to teach nephrectomy, inguinal hernia repair, suturing and anastomosis, cholecystectomy, appendectomy, hysterectomy, lobectomy, and bariatric procedures.



## LapVR Surgical Simulator

*CAE Healthcare*

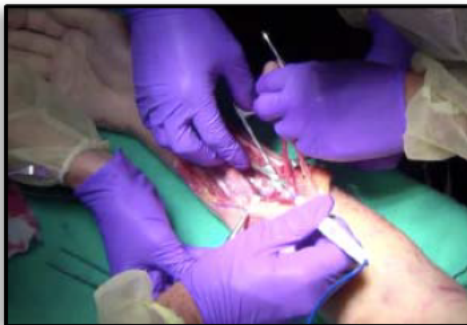
LapVR is a surgical simulator which allows trainees to develop proficiency in minimally invasive surgery skills by replicating laparoscopic procedures with haptic technology. LapVR can be used to learn techniques such as suturing, knot-tying, appendectomy, cholecystectomy, bowel inspection and resection or repair.



## TraumaMan System

*Simulab Corporation*

The most widely used trauma and surgical simulator in the world, the TraumaMan System is a high-fidelity human-body mannequin with lifelike skin, subcutaneous fat, and muscle. TraumaMan can be used to train a variety of surgical procedures, such as chest tube placement, cricothyroidotomy, intravenous cutdown, and pericardiocentesis. The Surgical Abdomen for TraumaMan features simulated pumping blood and can be used for both open and laparoscopic procedures, including repair of a nicked or lacerated aorta, renal artery, kidney, and cholecystectomy.



## EnvivoPC Perfused Cadaver

*Maximum Fidelity Surgical Simulations, LLC*

The EnvivoPC simulator uses state-of-the-art technology—including simulated blood and a pump—to create a perfused cadaver that mimics heart function and circulation while allowing for hands-on training in procedures involving active bleeding. EnvivoPC can be used to perform nephrectomy, splenectomy, bowel resection and anastomosis, liver resection, adrenalectomy, bariatrics, cholecystectomy, colectomy, ventral and para-esophageal hernia repair, and hemorrhage control.

(b) (6), (b) (7)(C), (b) (7)(D) is leading a revolution in medicine—putting a new focus on health and compassion. (b) (6), (b) (7)(C), (b) (7)(D) combines the clout and expertise of more than 12,000 physicians with the dedicated actions of 140,000 members across the United States and around the world.

**To learn more, visit:** (b) (6), (b) (7)(C), (b) (7)(D)



## Inspection Report

University Of Virginia  
Po Box 400301  
Office Of The Vice President For Research  
Charlottesville, VA 22904

Customer ID: **495**  
Certificate: **52-R-0011**  
Site: 001  
UNIVERSITY OF VIRGINIA

Type: FOCUSED INSPECTION  
Date: 09-JAN-2020

No non-compliant items identified during this inspection.  
This inspection and exit interview were conducted with facility representatives.

Prepared By:

**KIMBERLEY COHEN**

Digitally signed by KIMBERLEY  
COHEN

Date: 2020.01.09 19:21:11 -05'00'

COHEN KIMBERLEY, D V M USDA, APHIS, Animal Care

Date:  
09-JAN-2020

Title: VETERINARY MEDICAL OFFICER 6105

Received By:

SANFORD H FELDMAN, DVM, PHD, DACLAM

Date:  
09-JAN-2020

Title: DIRECTOR DELIVERED BY EMAIL  
20-02524\_000039



## Species Inspected

Cust No	Cert No	Site	Site Name	Inspection
495	52-R-0011	001	UNIVERSITY OF VIRGINIA	09-JAN-20

Count	Scientific Name	Common Name
000002	<i>Cricetomys gambianus</i>	GAMBIAN POUCHER RAT / NORTHERN GIANT POUCHER RAT
000036	<i>Microtus ochrogaster</i>	PRAIRIE VOLE
000002	<i>Mustela putorius furo</i>	DOMESTIC FERRET
000022	<i>Oryctolagus cuniculus</i>	DOMESTIC RABBIT / EUROPEAN RABBIT
000101	<i>Oryzomys palustris</i>	MARSH RICE RAT
000009	<i>Sus scrofa domestica</i>	DOMESTIC PIG / POTBELLY PIG / MICRO PIG
000028	<i>Tupaia belangeri</i>	NORTHERN TREE SHREW
<b>000200</b>	<b>Total</b>	