

# **A Non-Traditional Veterinary Career: My Experience as a USDA Veterinarian**

## **Master of Public Health Field Experience Report**



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November 17, 2008  
12:00 pm

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## The Federal Organization

### Benefits

The United States Department of Agriculture (USDA) is the branch of the federal government charged with “protecting American agriculture.” It was established in 1862 by President Abraham Lincoln and was given cabinet status in 1889. The USDA is currently charged with the responsibility of regulating the safety and development of food, agriculture, and natural resources.

Within the USDA there are seven mission areas that each have a different focus. Within the Marketing and Regulatory Programs area is the Animal and Plant Health Inspection Service. Their mission is “to protect the health and value of American agriculture and natural resources” by targeting the health and wellbeing of plants and animals within the United States. They do this by writing and implementing policy that prevents and prepares for the introduction of foreign disease and manages those diseases and pests that are currently in the United States. They are also charged to improve the productivity and competitiveness of American agriculture by working closely with the World Organization of Animal Health (OIE) and other trade partners to meet international requirements. Finally they work to protect public health by preventing the spread of zoonotic diseases and managing the diseases and educating the public about those currently in the United States. This is the agency under which I did my internship, at their headquarters in Riverdale, Maryland.

Because APHIS handles both the animal and plant health there are six programs that deal with specific plant or animal focuses within those areas and three that have an administrative focus. Of those programs that deal directly with plants and animals, Veterinary Services (VS) is the area that is focused on domestic animals within the United States. Their mission is to “protect and improve the health, quality, and marketability of animal and animal products.” They maintain animal programs that prevent, control, and eliminate diseases that threaten agriculture. They also monitor and promote animal health and productivity of those animals used in agriculture.

Within VS is Emergency Management and Diagnostics (EMD) and within EMD is the National Center for Animal Health Emergency Management (NCAHEM). This office is charged with preparing strategies and policies for effective incident management that deals with introduction of foreign animal disease or disease outbreak events. They also serve as a liaison between the USDA and other emergency management agencies such as Federal Emergency Management Association (FEMA), Department of Homeland Security (DHS), and OIE. This is the office in which I did my internships in the summer of 2006 and 2008. Both were excellent internships with different strengths and weaknesses and different focuses as the threats to American agriculture changed.

### **Veterinary Career Possibilities within the Federal Government**

Part of the summer internship experience was to discover non-traditional careers for veterinarians within the federal government. A significant amount of our time was spent interviewing and talking to people in different career fields about their path to their careers as well as their role as a veterinarian in the federal government. Those areas we visited included:

- DHS, Food, Agriculture, and Veterinary Defense
- DHS, Joint Agro-Defense Office
- Executive Office of the President, Office of Science and Technology Policy
- FDA, Center for Food Safety and Nutrition
- FDA, Center for Veterinary Medicine
- National Association of Federal Veterinarians
- NIH, Division of Veterinary Resources
- United States Public Health Service
- USDA, Animal Care
- USDA, Cooperative State Research, Education, and Extension Service
- USDA, Homeland Security Office
- USDA, Maryland/Delaware/D.C. Area Office
- USDA, National Center for Import and Export
- USDA, National Veterinary Stockpile
- USDA, Plant Protection and Quarantine

## Internship 2006

### Avian Influenza Situation Report

This project developed because of the growing threat of Avian Influenza (AI) entering the United States in 2006. With an increasing number of countries reporting positive results to the OIE, more and more resources were being appropriated for AI research and prevention. This support and money allowed the USDA to implement new programs and start new projects focusing on AI. The USDA AI Situation Report organized and summarized these projects to allow for easy distribution of this information within the USDA and to other federal agencies. The AI Situation Report also summarized those countries that reported positive test results in domestic flocks and wildlife, as well as human cases. The AI Situation Report was intended to be updated and released monthly to include new projects as well as report the continuation of previous projects. This project was a minor project in my summer internship but was extremely time consuming due to the lack of previous situation reports and the steep learning curve on the USDA acronyms, focus, and background of AI. The report was sent out at the end of the summer and no follow up report was released.

### Outside Composting Training Module

With the primary focus of USDA in 2006 being the threat of AI, NCAHEM focused on planning for a potential outbreak of AI. These plans included preparation for how to prevent the entrance of the disease into the country and then how to react if the disease were to enter. Plans were created for a large volume and quick response including animal testing, the destruction of potentially infected animals, disposal of large quantities of carcasses, and finally how to disinfect farms and equipment, preventing spread of the disease and re-infection.

Lori Miller, an environmental engineer, was the project leader in preparing and dealing with the disposal of carcasses. She has a very strong background in landfill design and the elimination of hazardous waste. Her focus was researching and planning for the disposal of mass quantities of potentially infected poultry carcasses and the litter from the houses these animals came from. She created plans for different ways in which to get rid of the carcasses and designed training modules that would effectively distribute this information to the field. My main project for the summer was to work with Lori Miller in continuing to develop these interactive training modules. They were designed to educate first responders and those that worked in the field in how to deal with large quantities of potentially infectious materials. The project was started in early 2006, and by the summer, the module for indoor composting was almost completed. The focus then switched to the next disposal option, outdoor composting, and this is the module that I predominantly helped to research. The module included information on the proper way to transport the mortalities and the litter, considerations for location, and what to do with the end product. It also included researching specifics for the composting process such as moisture level for optimal composting, carbon to nitrogen ratio, and

temperature. The modules for indoor composting, outside composting, and transporting to landfills were completed and actively being distributed by my second internship in the summer of 2008.

### **Foreign Animal Disease Practitioner's Course**

In response to a suspected animal disease these Foreign Animal Disease Diagnosticians come out to do preliminary testing and assessment. FADD's are trained in a course on Plum Island, New York. This course offers lectures as well as laboratories that allow FADD's to see those foreign diseases first hand in animals. Because these courses are only offered certain times during the year and are limited in the number of people they can take, the Foreign Animal Disease Practitioners (FADP) course was created. This course is a weeklong course that consisted of attending the lecture series of the FADD course via video conference and performing the same hands on laboratories but in healthy animals set for slaughter. These laboratories included testing and necropsies in chickens, cows, hogs, and sheep. The FADP course is currently offered three times a year in Riverdale Maryland, Ames Iowa, and Ft. Collins Colorado.

This was one of the most enjoyable parts of my 2006 internship. As a second year veterinary student I was able to get early exposure to pathology that I would see later in veterinary school and it was an experience that got us out of the office and into the laboratory. It was a great opportunity to meet people from all over the country and participate in lectures given by experts in the field.

## Internship 2008

### GIS Template Survey Report

The Emergency Management Template working group was formed with the objective of developing a template for all Veterinary Services mapping applications. In early 2008 a survey was sent to various federal and state employees who would respond in the field in the event of a foreign animal disease outbreak. Those included were Regional Epidemiologists, Animal Health Technicians and National Incident Management team members. The goal of the survey was to determine the desired mapping equipment used or required within Veterinary Services that would allow those responding in the field to effectively communicate with other APHIS units and complete their tasks efficiently. The survey was sent out using Survey Monkey, an online survey company, and the responses were sent to Emergency Management to compile.

Early in the summer of 2008 the surveys had all been collected. Our project involved evaluating and interpreting the survey results and presenting it in report form to be presented to the working group. The data collected was presented graphically and summaries of the results from each question were described and interpreted in a report. This was a very minor project for the summer but was very interesting. We were able to use our statistical training to evaluate the survey and make recommendations based off the results. Although interesting, lack of an effective survey, mostly due to technical limitations, made the data collected of minimal help.

### National Veterinary Stockpile

The National Veterinary Stockpile (NVS) was created in 2004 under Homeland Security Directive No. 9. The NVS is located within NCAHEM and is designed to make arrangements for supplies for the potential of a foreign animal disease. They do this by arranging for the appropriation of or physically storing the supplies needed in the event of an outbreak. This includes having sufficient amounts of animal vaccines, antiviral, or therapeutic products to respond to these animal diseases that often also affect human health. The NVS is designed to be able to be deployed in 24 hours, delivering supplies and vaccines to the site of an animal disease outbreak. The goal of those working within the NVS is to be prepared for, or to be actively in the process of preparing for, seventeen of the most threatening diseases to animal health and the economy by the year 2014. These diseases include Avian Influenza, Foot and Mouth Disease, African Horse Sickness, Rift Valley Fever, Rinderpest, and Classical Swine Fever, among others. The first priority for the NVS was to be prepared Avian Influenza. The NVS is currently well prepared for a potential outbreak of AI within the United States with the acquisition of killed AI vaccine for adult birds, live pox recombinant vaccine for day old chicks, reagents for test kits, PPE push packs, field testing kits, and emergency transportation. With AI less of a threat and well prepared for, the focus has currently moved to Foot and Mouth Disease (FMD) as a potential threat to American agriculture.

The NVS project I worked on as a summer intern involved gathering information about large animal handling equipment to support planning and equipment procurement to be used for vaccinating, processing, or destroying large numbers of animals. Activities included internet-based research on manufacturers and distributors of large animal handling equipment, equipment database development, personnel database development, coordination with NVS personnel, and development of a memo and survey for state veterinarians to determine their capabilities and equipment/supply needs in the event of an FMD outbreak. Although interesting, this project was a little out of my comfort zone and was significantly bogged down by bureaucracy. The interaction between the state governments and federal governments was tense and leaving this interaction to interns was not in the best interest of the program. Overall we contacted the states on multiple occasions via the Federal/State Liaison, Lee Myers and were able to collect a small amount of information on the amount and type of large animal handling equipment needed.

### **Disease Outbreak Standard Operating Procedure**

The Exotic New Castle Disease (END) Standard Operating Procedure (SOP) Manual was created after the 2003 California outbreak as a guide in the event of a future outbreak. This template was then used to create an SOP for AI in 2006 to be used in the event of an AI outbreak in the United States. Both SOP's contained a broad range of information such as procedures for testing and quarantine, disposal, epidemiology, and interacting with the public. The ultimate goal of NCAHEM is to have a specific SOP for each foreign animal disease that could potentially enter the United States. The immediate goal is to generate a non-disease specific SOP that can be used as a starting point in the event of any animal disease outbreak.

In 2008 we were given the task of taking the END and AI SOP's and using them as a base model for an SOP template that was non-disease specific. Modifications of the END SOP included removing species specific information, merging related chapters, synchronizing language with ICS terminology, as well as creating a general flow to the writing and grammar edits. The idea is not for the generic SOP to stand alone, but to be used as a starting point for other SOPs. A first draft was completed during the summer of 2008 and will be continued by contractors before a final draft is released. This document was very interesting to work on but was a large project for a summer internship. This document took up most of our time but was also the most productive of our summer projects.

### **Emergency Shelters for You and Your Animals Design Team**

After Hurricane Katrina, the USDA Cooperative State Research, Education, and Extension Service (CSREES) recognized that state and local response capacity may be easily overwhelmed in the wake of a large-scale natural or man-made disaster. The 4-H Youth Development Program's Science, Engineering, and Technology (SET) initiative and Agriculture in the Classroom programs collaborated to create the Alert, Evacuate, and Shelter Program (AESP). AESP engages youth from both programs to use geospatial technology to capture evacuation routes and shelter data for the



development of maps for community use. The current program focuses on the states along the coast of the Gulf of Mexico and Southeastern United States. The AESP program participants also observed that many shelters are human-only shelters and will not allow an evacuee to bring their pets with them when they evacuate. They then initiated a disaster animal shelter aspect of the program called, Emergency Shelter for You and Your Animals. This effort consists of capturing disaster shelter data specific to pets using geospatial technology and map-building computer programs.

The Emergency Shelter for You and Your Animals Design Team currently consists of specialists with backgrounds in education, outreach, technology, veterinary medicine, emergency management, and animal shelter management. The Design Team will meet as needed to provide guidance to the participants and support AESP program development. Design Team members will also conduct outreach to expand the program to parts of the country beyond the original 11 states and the District of Columbia and to adapt the program as needed to fill and address emerging gaps and issues.

In 2008 representatives from CSREES and USDA met to enhance and promote the development of the Ag in the Classroom animal shelter mapping initiative. The program involves students gathering human and animal shelter data using GPS, developing maps, and improving awareness in their communities to promote preparedness for natural and manmade disasters. We were included in this project to bring in experience of veterinary students and their potential to help on the project. There was a suggestion that pre-veterinary or veterinary students could be active in collecting data in their area and doing more specific work such as inspecting these locations and their functionality to be an animal shelter. During the summer we were able to start with information gathering and mission statement development. Because the scope of this project is long-term, the plan is to continue this project beyond the summer 2008 internship period as a volunteer advisor and coordinator. This was a great project to work on and was filled with extremely dedicated and knowledgeable people. I continue to be skeptical as to our role in the project but am committed to helping where I am able and appropriate.

## **Field Activities**

### *Delaware State Fair*

The Delaware State Fair takes place yearly at the Fairgrounds in Dover, Delaware the third week in July. The USDA APHIS provides an educational booth to promote current projects and help with community outreach and awareness. We volunteered to sit at the booth and provide information to fair-goers. While there we provided the educational handouts and information to the general public about the USDA and APHIS and answered any questions they had. This year's emphasis was on the National Animal Identification System (NAIS). We discussed the USDA and its role in everyday life and in American agriculture with dozens of people. Topics we discussed included keeping food sources safe and emergency planning for both agriculture and in the home, as well as continued education on AI. This was a very enjoyable experience. It

allowed us to get out of the office and visit with the general public about our experiences and the parts of the USDA that needed community support and knowledge.

### *Goose Round Up With Wildlife Services*

Wildlife Services is the program under APHIS that is dedicated to helping to resolve conflicts between people and wildlife, allowing them to coexist peacefully. When a conflict is reported, they initially provide education and training in how to deal with these conflicts. Many conflicts are resolved with non-lethal techniques such as habitat modification, fencing, or scare tactics. If these techniques do not work they do resort to collecting the animals and either relocating them or exterminating them. In my experience with Wildlife Services we visited a retirement community in Salisbury, Maryland that had an overpopulation of Canadian Geese. The chief complaint was that these geese were causing an increase in fecal matter, risk to motor vehicles, and risk to residents as the geese were protective of their nests. Wildlife Services had worked with management at the retirement community for about two years and were unsuccessful at keeping the geese out. Techniques tried included putting up fencing, using dogs to scare the geese, altering the habitat, and collecting eggs. When these techniques were unsuccessful the decision was made to collect the geese and butcher them, donating their meat to a local homeless shelter. We work to collect the geese with panels and transferred them to the butcher.

### *National Zoo*

Animal Care is the program under APHIS that determines the standards for the humane care and treatment for animals through education and inspection. They regulate and enforce the Animal Welfare Act and so routinely do inspections of facilities that use or exhibit animals. Dr. Gloria McFadden is an Animal Care Inspector for northern Maryland and the District of Columbia and so she has jurisdiction over the Smithsonian National Zoo. On a yearly basis she does unannounced inspections of different areas of the zoo. We were able to get a tour of the zoo with her. While there we walked through the entire zoo and discussed what the guidelines were and what she specifically looked for when doing an inspection at a zoo. We also discussed the regulations laid out in the Animal Welfare Act that affected animals in zoos and how it was enforced. We were given a behind the scenes tour of the Asian Trail, including the Sloth Bear exhibit, and the Seal and Sea Lion Exhibit. Dr. McFadden was extremely knowledgeable about the history of the zoo as well as what happened at the zoo that regular visitors were unable to see. Being a native to the D.C. area I really enjoyed this day. It was extremely interesting and was a great day to get outside and see the zoo.

### *National Institutes of Health Large Animal Intensive Care Unit*

National Institutes of Health (NIH) is dedicated to the research of human diseases and pathogens. However animals are a necessary part of this research process and often the findings benefit not only humans but the animals as well. We spent a day in the large animal ICU with Dr. Tanya Burkholder, a laboratory veterinarian. There we worked with the animals being used in research including those considered large animals in research, dogs and pigs, as well as more traditional laboratory animals such as mice and rats. While there we evaluated the animals and their disease progression

and potential abnormalities that may alter the study or affect the well-being of the animal. In multiple occasions we assessed the well-being of the animal versus the potential gains of the research and deemed the animal suffering was too great and euthanized the animal. Research being conducted included mitral valve disease in pigs, leukocyte adhesion deficiency represented in Irish Setter crosses, and mice with a variety of malignant tumors. This was one of my favorite days in the internship. It allowed us to get hands on experience with animals and the compassion and commitment of Dr. Burkholder was extremely impressive.

#### *Food and Drug Administration Center for Veterinary Medicine Laboratory*

The Food and Drug Administration (FDA) is responsible for protecting public health by regulating human and veterinary drugs as well as biologics, cosmetics, and medical devices and products. Within the FDA there is the Center for Veterinary Medicine (CVM). The CVM works to regulate the manufacturing and distribution of feed additives and drugs that are given to animals. To fulfill their mission they do research at multiple locations including their research farm in Laurel, Maryland. These farms have cattle and swine facilities as well as aquaculture facilities where research is conducted on the safety and efficacy of drugs used in animals. We were able to get a tour of the laboratories and the barns, as well as their feed mill that allows them to effectively test feed additives in a controlled environment. This tour was very technical and a little out of my knowledge base but was extremely interesting.

#### *Area Office Field Inspections*

Area offices are set up to regulate and enforce Veterinary Service disease programs and inspections in a defined area of the country. These offices employ Veterinary Medical Officers who routinely conduct inspections for laboratory safety and regulation and farm inspections for the disease specific programs. On multiple occasions we were able to shadow Dr. Bill Hawkins, a Maryland/Delaware/D.C. Area Veterinary Medical Officer on inspections. These included multiple Scrapie Flock inspections, laboratory permit inspections, and a BSL-3 Laboratory inspection at the Veterans Hospital of Baltimore. These inspections were extremely interesting and they were excellent chances to get out of the office and get some field experience. This was of particular interest to me as most USDA veterinarians start in a field position, and not at headquarters like where our internship was. Therefore this gave me a chance to see what a potential starting job with the USDA would be like.

## **Training**

#### *Incident Command System*

The Incident Command System was initially developed to help organize a chain of command in the event of a wildfire. Since its start it has been expanded to be implemented within many other organizations, including the USDA. Incident Command is designed to be a uniform system that is versatile and thus can be used in small planned events such as a parade or large scale emergencies such as a foreign animal disease outbreak. ICS100 and ICS200 are part of the training package for all USDA employees. This allows them to be knowledgeable about ICS and active in its

implementation in the event of an emergency. The two courses also provide the foundation for more specialized ICS training. During the summer of 2008 ICS was initiated while dealing with the tuberculosis outbreak in California and teams were created and sent from across the United States to aid in the testing cattle. I volunteered for this opportunity but was unable to participate due to my limited time at the USDA.

#### *Live Bird Market Systems Training*

This training was a three day training session at the University of Connecticut in Storrs, Connecticut. The training included lectures, wet labs, and exercises all with the goal to educate on how the federal government and state and local governments can collaborate when dealing with Live Bird Market Systems. Participants were mostly from the Northeastern states but also included state officials from Kentucky, California, and an array of Caribbean Countries. Lectures included topics such as:

- An Overview of USDA National Notifiable Avian Influenza Surveillance
- Respiratory Diseases of Poultry/ Diseases of Game Birds
- Wild Birds Risk Based Surveillance
- PPE Guidelines
- Biosecurity and Records Auditing
- NAI Cooperative Agreements
- Euthanasia and Disposal
- Appraisal and Indemnity Guidance
- NVSL Surveillance Testing
- Cleaning and Disinfection of LBMs
- Updates on the LBMS in Mexico and the Dominican Republic
- Cultural Awareness

Wet labs and Exercises included:

- Avian Handling and Sampling Wet Lab
- Communication Exercise
- GPS Training
- Tour of LBM Distributor

## My Impressions

### The Positives

Overall my internship was extremely worthwhile and I would recommend it to another MPH candidate, who was also in the process of getting, or had their DVM. I believe the most worthwhile part of this internship was the very extensive networking base I was able to establish. Every interview and shadowing experience we had allowed us to meet at least one veterinarian and therefore we met dozens of people in three months all of whom were extremely willing to help us any way they were able. We had multiple opportunities for recommendations for employment within the federal government which for a recent graduate or a student close to graduating was a great opportunity. Something else that made the internship extremely interesting was the huge diversity of topics that we worked on. We were able to learn about and deal with many different diseases and topics that are important within the federal government and we were exposed to many different aspects of managing and preventing those diseases. This included how to deal with diseases while they are still a threat, how to manage current diseases in the US, how to deal with the public, how to deal with emergency issues, and how to write policy and procedures about these issues, something we don't get a lot of in veterinary school. This internship was also very related to veterinary medicine. It did include public health, as the topics are closely intertwined, but you mostly dealt with the animals that threatened public safety. And it was an experience with a veterinary career that was an alternative to a traditional clinic route, which is what veterinary school primarily prepares you for. Finally it was great being at headquarters, so close to D.C., and to see where a lot of the laws and regulations are started.

### The Negatives

Although the positives far outweigh the negatives of this internship there are some very prominent negative characteristics that interns should be prepared for when starting the internship. The most challenging one is the bureaucracy that comes with working for the federal government. You have to remember not to take a lot of the criticism and interactions personally and remember that people within the federal government often deal with people from different agencies and offices with different expectations and their interactions are not always positive. The bureaucracy also makes many of the projects the interns work on long term projects that will not be completed in the time frame they would work there. This means that you may never see the final product of what you spent your whole summer working on. And many projects are stopped or lose funding or priority part way through and so are never actually completed. This can be something that can be frustrating or disheartening. Another negative for me personally was that most projects I worked on involved writing and researching and were therefore desk projects. Many people go into veterinary medicine to interact with animals and people and that was limited in this internship. Finally the last negative is the dynamics within the office. The people are very nice but extremely busy on their own projects and so there is often little time for guidance or you can often feel in the way. Even with all

these negative aspects this was an awesome internship I would recommend to any veterinary MPH candidate.