Zoonotic Diseases Safety Report

Wildlife Services' Safety Review
Zoonotic Diseases

Final Summary Report

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Executive Summary

Review Process

To assess the degree of safety for Wildlife Services' (WS) in the arena of zoonotic diseases, we:

1. Reviewed agency policies, directives, and supporting documents.
2. Reviewed training requirements, procedures, materials, and enforcement.
3. Visited 4 state programs and 1 rabies bait drop operation to observe equipment use, field techniques, administrative support, and other pertinent factors.
4. Interviewed WS staff and administrators.
5. Inquired about and investigated zoonotic infections.

The purpose of this review was to determine the knowledge and preparedness to reduce the risks of zoonotic diseases among WS personnel. To that end, WS directives were reviewed and 5 field visits were made to 4 different states and 8 different localities. Administrative and field personnel were interviewed and observed under working conditions in most states. While fundamental safety precautions are consistently in place, most personnel expressed only limited concern for and knowledge for disease risks encountered during routine job assignments; on the positive side, they did recognize the need and/or value of more training or awareness of disease potentials.

Throughout the following review summary, within each pertinent section, we make a number of recommendations to increase the level of safety in the arena of zoonotic diseases. However, the following are what we deem the most important recommendations for WS, in order of priority, which should be addressed immediately. Although these are prioritized 1-8, we consider them essential and, in fact, they build upon each other. For example, the creation of training to address zoonotic disease safety (#6) is of utmost importance, but such training can't be

developed until other issues are addressed (e.g., development of directive, creation of zoonotic disease safety protocols, etc.).

Priority recommendations:

1. Develop a directive to address the real and potential risks of zoonotic exposure and disease.
2. Identify regional (if not by state) zoonotic disease risks that is cross referenced to the animals that may transmit each disease. Make this information available to all personnel.
3. Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists.
4. Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.
5. Develop agency-wide zoonotic disease safety protocols.
6. Establish a training academy (distance component as well as local or face-to-face practical training), which incorporates zoonotic disease information into all aspects of WS activities.
7. Maintain a positive work environment with open communications.
8. Integrate wildlife (zoonotic) disease awareness into all aspects of WS activities.

Major Risks Associated with the Zoonotic Diseases in the WS Program

The major risks of and associated with zoonotic diseases in WS program include:

1. Contracting a zoonotic disease through:
    a. Direct contact with an infected animal,
    b. Fomites (contaminated equipment, needles, etc.),
    c. Insect vectors (e.g. ticks, mosquitoes, flies, etc.),
    d. Environmental contamination (e.g. lepto through urine, deep fungi through soil contamination)

2. Failure of health care personnel to accurately and rapidly diagnose various zoonotic conditions. Many of these conditions are NOT routinely encountered by physicians and can be overlooked, thus postponing appropriate treatment in many cases

Findings, Discussion, and Recommendations

Directives

In essence, no current directive directly addresses the risk of zoonotic diseases in the WS program. A review of the available directives indicates they are quite general and leave much room for specifics to be addressed at the local level or through SOPs. Directives 1.101 The Wildlife Service Policy manual, 1.201 Mission and Philosophy of the WS Program, 2.515 Disposal of Wildlife Carcasses,2.601 Safety, 2.605 Safety and Health program, 4.301 Employee Development, 4.210 Program Evaluation, 4.305 Meetings and Conferences, and 4.405 WS Safety and Health Incentive Program were reviewed. Most directives place the emphasis for

personnel safety upon the employee and appear to protect the interests of WS. It was noted during multiple interviews that there is consistent concern over an employee contracting a disease that is likely job-related, but in order to receive compensation the employee must demonstrate conclusively to have contracted the disease "on the job" (e.g. tick- or mosquito-borne illnesses requiring constant documentation). This atmosphere of defensiveness is not conducive to excellent employer / employee relations. Zoonotic disease is briefly mentioned in one directive (2.501) and then only at the bottom of page 2. A separate directive concerning this topic could be quite advantageous.

Policy Recommendations:

1. To emphasize their importance, develop a directive to address the real and potential risks of zoonotic exposure and disease.

Safety Program Administration

The relatively new WS National Wildlife Disease Program is an important and innovative approach to infuse zoonotic disease awareness and safety throughout the agency. Indeed, WS serves as the national leader in the arena of wildlife diseases, mostly because of the new National Wildlife Disease Program. By placing personnel with zoonotic disease expertise in most state programs, the agency has highlighted the importance and future implications of zoonoses and, significantly, WS has created a framework to integrate zoonotic disease safety throughout the agency. The leadership for the National Wildlife Disease Program has and will continue to be instrumental in leading this group to influence zoonotic issues agency-wide. Certainly, we envision the program leaders and biologists to be heavily involved in implementing many of the recommendations we propose in this report. Although the knowledge level of some disease biologists is less than we hoped for (see training section below), we expect this deficiency to disappear with the ongoing evolution and development of the program. Perhaps our perception is flavored by our background in veterinary pathology and academia, and thus we had unrealistically high expectations. In any event, WS should consider creating an inventory of skills/knowledge for disease biologists, which would effectively establish a benchmark for all personnel in the program.

As mentioned above, no directive exists to directly address zoonoses. As a result, there is a dearth of training protocols and requirements, SOPs, guidelines, or other supporting material to help personnel understand zoonotic risks and accompanying safety protocols. Many of these resources will naturally flow from a strong directive or other policy addressing zoonotic diseases.

Administrators and field personnel with WS have a wide variety of knowledge about the importance and risks associated with zoonotic diseases. Obviously, state directors and other administrators should not possess the same level of knowledge as disease specialists, but they should have a general level of knowledge about zoonotic diseases and, more importantly, aggressively support training for their field personnel. We address this need in the training section below.

The distribution of the laminated medical alert yellow cards indicating that physicians should consider exotic diseases (e.g. brucellosis, anthrax, HPAI, Q Fever, etc) when examining WS personnel is a great measure to protect employees' health, and has in fact been adopted by the larger organization (APHIS). WS personnel are their own best advocates when seeking medical attention and increased personal knowledge can only reinforce their abilities to protect themselves, and the medical alert cards provide significant support for this.

Administrative Recommendations:

1. Develop regional (if not state) lists zoonotic disease risks that are cross referenced to the animals that may transmit each disease.
2. Post this information in a conspicuous location in central and local offices.
3. Maintain clear channels of communication between employees and supervisors.
4. Integrate wildlife (zoonotic) disease safety into all aspects of WS activities, including general zoonotic disease safety training at venues such as state and regional conferences and verification of PPE inventories and use.

Training

Again, the lack of a directive about zoonotic diseases has resulted in little standardization regarding zoonotic disease safety protocols and resultant training opportunities. For the most part, safety protocols have been left to each state program to develop and implement and, more recently, to the wildlife disease program to make national recommendations. Outlines and proceedings of the past several years' Wildlife Disease Biologist meetings and training sessions were reviewed. These materials appear to be excellent and undoubtedly provided great resources to those personnel. But as noted at several site visits, the "train the trainer" strategy is not always successful, and its use should be scrutinized. Certainly, there is value in having each wildlife disease biologist serve as an information resource for each state program, but this should be supplemented with regular input and guidance by bona fide experts. There are several other possibilities for having experts deliver information to multiple locations through video or streaming digital contacts. No longer does "face-to-face" education require long distance travel for many people.

During employee interviews there was great variation is the knowledge base demonstrated. Generally, personnel have a broad yet shallow level of knowledge about zoonotic diseases. For most personnel this is sufficient – as long as technicians, for example, understand what and how to use personal protective equipment (PPE), most potential zoonotic exposures will be prevented. However, wildlife disease biologists, who supposedly possess the greatest level of expertise about zoonoses in the agency, should possess a much more in-depth level of knowledge. Although some disease biologists appeared to have this higher level of knowledge, others could not correctly answer fairly basic questions about zoonotic diseases. However, we recognize our perception may be flavored by our background in veterinary pathology and academia, and thus we perhaps had unrealistically high expectations. In any event, WS should consider creating an inventory of skills/knowledge for disease biologists, which would effectively establish a benchmark for all personnel in the program.

The appropriate use of PPE and use of good field techniques varied widely. Most personnel were very knowledgeable, conscientious, and skilled in the use of PPE and demonstrated good

field techniques, while others were less so. In some specific cases, personnel demonstrated a striking lack of understanding of infectious disease transmission and appropriate protocols. In some cases, for example, personnel wore protective gloves while handling an animal but also handled objects that would be handled again later without protective wear; in another case, an employee stored biological samples in the same ice cooler that contained his lunch. Every effort should be made to improve employee knowledge base concerning conditions to which they could be exposed or to contract during day-to-day work details and to improve employee understanding of various techniques/procedures that mitigate the risk of disease transmission. During field visits without exception WS employees were interested in further training concerning job-related health concerns.

Currently, the I&E manual and training protocol addresses some risks associated with zoonotic disease, but this is not sufficient for all personnel. Certainly, many WS employees never have need for I&E certification and thus never receive that training, but they still may be handling animals and become exposed to zoonotic diseases. All personnel who are subject to zoonotic disease exposures should understand risks and associated safety protocols, independent of the I&E training protocols and curricula.

WS disease biologists are "first responders" and as such they need to reach the scene as prepared as possible for biological as well as other health hazards (e.g. intoxicants, radiological, or physical agents). This may involve additional protective personal equipment as well as knowledge and skills to properly address a wide-variety of situations, which may already be addressed by the emergency response trailers (see discussion below under Field Operations). This should be considered but handled in a state-by-state fashion.

Training Recommendations:

1. Develop and implement several courses (on-line or otherwise) / in-service training modules to improve WS employee awareness and abilities to confront health hazards.
2. Offer advanced training on personal protection from job-related health hazards.
3. Create a training manual specific to zoonotic diseases and maintain it's currency through a WS Employee website.
4. Develop a comprehensive list of needed skills/knowledge for wildlife disease biologist to serve as a benchmark for future training and hiring.
5. Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists, and give them the responsibility for essentially serving as the zoonotic disease safety officer in each state.

Field Operations

The most critical method to prevent accidental exposure is knowledge of and ability to use good field techniques. This knowledge followed by appropriate and properly employed PPE is essential to prevent accidental exposure to zoonotic or other risks. Latex gloves and a non-cluttered work area are first and foremost for most situations. However, the availability of more advanced PPE (e.g. masks, eye shields, tyvek and respirators) may become necessary and should be available on short notice (especially for first-responders). The National Wildlife Disease Program has developed 3 emergency response trailers, which contain all of this equipment and more, and these likely are sufficient to meet this need.

Observations in the field revealed that most employees were using basic PPE and noted that additional PPE was available upon request. However, as noted previously, several WS employees demonstrated a lack of good field practices (i.e. possible cross contamination of equipment and other materials while wearing latex gloves, others stored human food items in a sample ice cooler, or smoked while wearing protective gloves). These practices represent significant opportunities to breach biosecurity in the field and WS employees need constant reminders (refreshers) to maintain their attention level to zoonotic risk. It is human nature to become complacent in the face of familiarity. One state had its employees work in pairs that rotated (i.e. switched partners periodically). This provided and new level of accountability and served to provide mentorship for newer employees. This should not be viewed as luxury, but as good field practice, particularly when employees are working on projects with a high risk of zoonotic disease exposure.

"Sharps" in the field pose a great zoonotic risk to WS personnel (perhaps second only to being bitten or scratched by wildlife). In the field, some personnel did not handle sharps appropriately. Thus, appropriate training and practice concerning the handling of these materials is critical (see training comments above).

Field Operations Recommendations

1. Continue to provide appropriate equipment and materials (including disposal).
2. Maintain knowledge of risk and mitigation techniques to avoid risk.
3. Encourage communication/mentorship with all employees.

Accidents, Injuries, and Illness

An email survey of state directors identified a few reports of documented zoonotic disease amongst WS personnel, but many of these were either not submitted to or approved by OWCP. There was consistent concern over establishing "on-the-job" exposure in the event that an employee contracts a zoonotic disease. Follow-up conversations with these state directors who reported zoonotic infections were not completed as calls were not returned. Personal communications (anecdotal information) with other WS employees indicated that the incidence of job-related health concerns is higher than actual reports. This is an interesting (unexplained) observation as the culture of WS is such that most employees appeared to be comfortable enough with supervisors to share concerns and ask for assistance as needed. Likewise most supervisors paid personal attention to concerns of field and office employees. The reason for this incongruity remains unclear.

In situations where infections or possible infections occurred, WS administration was conscientious and effective at supporting the appropriate testing and treatment.

In nearly every case of reported infections or possible infections, the root cause was either insufficient PPE or poor field techniques. These issues are easily resolved via our training recommendations and subsequent accountability to follow safety protocols.

Accident Recommendations

1. Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.
2. With regard to recommendation 1, develop a better tracking system to quickly identify zoonotic exposures and potentially link those with personnel working on high risk projects.
3. Explore possibility of providing blood testing and/or banking for all new and transferred employees, which establishes a baseline from which to monitor and discover all potential diseases contracted on-the-job.

Wildlife Service's Culture and Attitudes toward Safety

Overall, WS should be commended for its culture and attitudes towards safety. In most states, we observed highly conscientious and committed professionals who paid attention to human safety. However, we encountered the occasional situation where this level of enthusiasm and competence was lacking and thus there is always room for improvement.

As one state director noted, WS needs to integrate zoonotic disease safety into all aspects of agency activities. This can be a daunting task for some states who have expansive territory and numerous personnel to manage. However, it is a task that MUST be undertaken to maintain the confidence of employees and the general public.

Most states demonstrated a team of employees who respected and promoted education and knowledge. In some states, there was also an obvious culture against education as we heard employees teased that they had a college education. These attitudes were not generally mixed within a state, but rather either distinct or absent within each respective state.

Culture Recommendations

1. Integrate wildlife (zoonotic) disease awareness into all aspects of WS activities
2. Encourage communication / mentorship with all employees

Summary

Overall, Wildlife Services is to be commended for its' zoonotic safety record and for the creation of the National Wildlife Disease Program, which is an important and innovative approach to infuse zoonotic disease awareness and safety throughout the agency. But, there is always room for improvement, and we hope to encourage the resolve of WS to improve on an already good zoonotic safety record. WS employees are bright and eager to do a good job. They come from diverse educational and experiential backgrounds and as such administrators need to pay heed to the skills, knowledge, and abilities of new hires, while striving to ever increase the potential of more long-term employees. While attention to the details of safety was evident during most site visits, there were occasional lapses in appropriate behaviors and techniques. It would appear that the desire to accomplish the WS mission as safely as possible is the goal of all WS personnel that we encountered. This will require some increased vigilance on the part of leadership and the allocation of appropriate resources (financial and man-power) to accomplish this task. Perhaps most importantly, the development of agency-wide safety protocols and procedures to protect

personnel against zoonotic disease risks will allow the development of effective training protocols and subsequent field practices.