



Public Health Update

Wednesday, July 26, 2006

Height of NPS Summer Season and Public Health Staff Travel

July marks the busiest time of year for many NPS units and that's true as well for the Public Health Program (PHP) Regional Public Health Consultants.

Based in each region, these U.S. Public Health Service Officers assigned to the NPS Office of Public Health, spend countless hours on the road in order to conduct routine evaluations and assist parks with issues.

The core public health areas that this field staff attempts to concentrate on are drinking water safety, waste water disposal, food safety, and vector borne disease issues. On-site visits are conducted in order to determine the types of public health hazards a park unit, its' geography, climate, infrastructure, etc. create and what degree of control park management has over these possible threats to public health.



In those park units that provide drinking water, consultants check on wells, disinfection, storage and distribution of drinking water to see that systems are in compliance with state and local requirements. They don't stop at mere compliance however, with their high-end expertise, they think through any weaknesses in the system that could present a potential route for disease agents or unwanted chemicals to get to our employees and visitors. Any issues identified are discussed with utility operators and park management and followed up on to continuously improve the safety of our water supplies.

Human waste is always a potential threat to human health and one of the defining

successes of the last century has been the careful and proper treatment and disposal of sewage. PHP Consultants review the performance and condition of all on-site treatment systems and assist parks with problem solving. As with many aspects of our NPS infrastructure, the unique settings and mission of NPS means that many creative solutions must be pursued to not only keep waste water from becoming a public health hazard, but to also protect pristine environments without large footprints or structural impact.



Many of our larger parks contain concessions and many of these offer food, from snack counters to full service, upscale restaurants. Under NPS DO 83, all of these facilities must comply with the most recent version of the U.S. Public Health Service Model Food Code, written by the Food and Drug Administration. Again, PHP Consultants go above and beyond these requirements to more deeply understand the kitchens as complex systems, what potential hazards they create, what degree of control operators have over these hazards, why they operate they way they do, and using all of this information, work with concessions and parks to strengthen food safety. NPS is a national leader in the exploration of some of the newest methods in food safety facility evaluation.



Those diseases which might be transmitted between people by an intermediate vector, such as West Nile Virus, Lyme disease, and others can be of particular concern when the main point of a park unit is to bring people in contact with nature. Limiting the risks from these issues is a challenge within NPS. In a city or county, mosquitoes would simply be sprayed and killed, but within NPS, these creatures are a natural part of the very ecosystems we seek to preserve. This aspect of our mission makes dealing with vector borne disease issues an interdisciplinary necessity, with the PHP, park staff and IPM program all working together to come up with innovative solutions.

In addition to these core subjects, PHP Consultants try to identify any other public health concerns and/or assist park managers and staff with their issues and priorities. These can vary from Rabies to brain eating amoeba. The public health and disease transmission potential is just as varied as our park units.

We all know that most visitors are blissfully unaware of all that NPS must do in order to accommodate their visit and preserve the special places entrusted to us. The same is true for a lack of awareness about where the water comes from when they turn on the tap, or where it goes when they flush the toilet. Enabling visitors to focus on the scenery, wildlife, geology, history and culture of a park, is a joint venture between countless dedicated (and in the summer, frazzled) NPS employees! Right in there with them, are the officers of the United States Public Health Service, serving in one of the oldest and proudest federal partnerships.

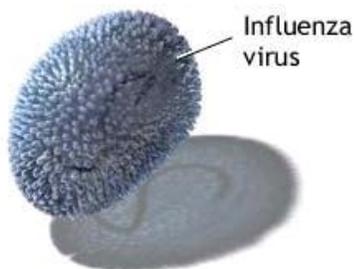
Service- Wide Planning Effort for Avian Influenza Are Well Underway...

...Is Your Park Ready?

What if an avian influenza pandemic - a worldwide epidemic - were to begin this fall? Influenza pandemics occur on a regular basis. Three occurred last century. Since 1997 there has been a novel and highly pathogenic influenza virus circulating in wildlife and killing domestic poultry that is capable of causing disease and death in humans. If this virus changes so that it can be easily transmitted between humans, as many as 90 million Americans could become ill and 200,000 to 2 million could die.

What if an outbreak developed in your community, causing disease in a third of the population and reducing the available staff at your park by 40 percent? How would your park be affected? Who should be contacted for updated information and guidance? What can be done to protect NPS employees and visitors, and to minimize the impact on your park and its partners? The National Parks Service released avian influenza preparedness and response plans this spring that provide guidance for parks for preparing and responding to pandemic influenza and highly pathogenic avian influenza disease in wildlife.

Is your park ready? If not, where should NPS employees and park management—begin? First, consider your mission functions in relation to the pandemic influenza planning assumptions (see inset). These are realistic scenarios that must be considered. Use the Level One Action Plan tables in the NPS H₅N₁ Pandemic Influenza Preparation and Response Plan (“the Pandemic Plan”) to guide your planning. These tables are organized to steer you through strategies and tasks for meeting your unit’s and the Service’s preparation and response objectives.



Planning and Response Objectives

1. Protect employees, families, cooperators and the public to the greatest degree possible.
2. Continue to perform the agency's mission-critical functions.
3. Provide timely and accurate information to employees, management, stakeholders and the public.
4. Provide critical resources to assist other agencies in meeting societal needs as required by the Department or other higher level authority.
5. Restore operations to pre-pandemic levels.

It is important to remember that response to pandemic influenza will be carried out primarily at the state and local level with support provided from the federal and Service wide level. Therefore, you must be a part of local planning. Communication with local officials will be critical, as will be communication with your regional office, concessions and other partners at your park. Identify important points of contact and develop a working relationship with them before a pandemic occurs. Your Regional and Park Public Health Consultants are available to assist in developing a dialogue with local health jurisdictions.

Need more help? The National Type-1 Incident Management Team met at the National Interagency Fire Center in Boise July 10-14 to complete several Service wide preparation tasks including drafting a communications plan, identifying regional points of contact for pandemic influenza and avian influenza in wildlife issues, developing tools and reference materials that will help you complete your planning tasks, and making them readily available. Look on InsideNPS for the link to the NPS Avian Influenza Preparation and Response page. (The InsideNPS link will be available and active shortly, in the interim, tools and information are located at http://www.nps.gov/public_health/zed/ai/a.i.htm.)

Still, after you have assembled key personnel and discussed and considered the Level One Action Plan strategies for your unique park mission functions, you will likely have questions. Each region has identified individuals that will serve as points of contact and can help direct you to regional resources. You can find your regional contact for both pandemic and

avian influenza in wildlife issues at the NPS Avian Influenza website.

Additionally, two teams of experts have been organized. OTIS, the Operational Technical Issues Specialist team, is composed of public health specialists, epidemiologists, wildlife health specialists, veterinarians, employee health specialist, and risk management specialists. ATIS is the staffed by specialists in human resources, budget analysis, contracting, and information technology, and will also include an Incident Business Advisor. For answers to your specific questions or help finding solutions to problem planning issues, ask Otis (nps_ask_otis@nps.gov) or ask Atis (nps_ask_atis@nps.gov) your specific questions. As important as these teams will be in planning, they may be even more valuable in the event of a pandemic or avian influenza event in wildlife as a source of assistance in interpreting dynamic disease status information and data for decision making.

Pandemic Influenza Planning Assumptions

- Virus will be easily transmitted and everyone will be susceptible.
- ≥ 30% of the population will become ill. Half of those will seek outpatient care.
- Risk groups for severe and fatal infection are likely to include infants, the elderly, pregnant women, and persons with chronic medical conditions.
- Absenteeism attributable to illness, the need to care for ill family members, and fear of infection may reach 40% during the peak weeks of a community outbreak, with lower rates of absenteeism during the weeks before and after the peak.
- Public health measures (closing schools, quarantining household contacts of infected individuals) are likely to increase rates of absenteeism.
- A community outbreak will last 6 to 8 weeks.
- Multiple waves of illness lasting 2-3 months could occur.

See a more complete list of planning assumptions in the [NPS Pandemic Influenza Preparation and Response Plan](#)

Highly Pathogenic Avian Influenza in Wildlife Preparedness and

Communications Plan and Highly Pathogenic Avian Influenza in Wildlife Response Plan were released in April 2006. H5N1 Pandemic Influenza Preparation and Response Plan was released in May 2006.

These documents can be accessed through the NPS Avian Influenza website link on the InsideNPS homepage.

Relapsing Fever

Note: edited from material provided by CDC

Relapsing Fever is a disease characterized by relapsing or recurring episodes of fever, often accompanied by headache, muscle and joint aches and nausea. There are two forms of relapsing fever but only the tick-borne version will be discussed here.

TBRF is caused by several species of spiral-shaped bacteria that are transmitted to humans through the bite of infected soft ticks. Most cases occur in the summer months and are associated in particular with sleeping in rustic cabins in mountainous areas of the Western United States. There are approximately 25 cases of TBRF in the United States each year.

In the United States, TBRF is caused by one of three *Borrelia* species: *B. hermsii*, *B. parkerii*, and *B. turicatae*. Most human illness is caused by *B. hermsii*.

Borrelia is transmitted to humans through the bite of infected soft ticks of the genus *Ornithodoros*. Soft ticks (family Argasidae) differ in many ways from the so-called hard ticks (family Ixodidae), including the more familiar dog tick and deer tick.

In contrast to hard ticks, soft ticks take brief blood meals lasting less than a half hour, usually at night. Between meals the ticks live in the nesting materials in their host burrows. Individual ticks will take many such blood meals during each stage of their life cycles, including the development of eggs by adult females. The bites of soft ticks are usually painless and the persons who are bitten while asleep are usually unaware that they were bitten.

The individual *Borrelia* species that cause TBRF are usually associated with specific tick vectors. For instance, *B. hermsii* is transmitted to humans by *O. hermsi* ticks, while *B. parkerii* is transmitted by *O. parkeri* and *B. turicatae* is transmitted by *O. turicata*.

Each tick has a preferred environment and preferred set of hosts. *O. hermsi* tends to be found at higher altitudes (1500 – 8000 feet) where it is associated primarily with ground or tree squirrels and chipmunks. *O. parkeri* occurs at lower altitudes, where they inhabit caves and the burrows of ground squirrels and prairie dogs, as well as those of burrowing owls. *O. turicata* occurs in caves and ground squirrel or prairie dog burrows in the plains regions of the Southwest, feeding off these animals and occasionally burrowing owls or other burrow- or cave- dwelling animals.

In the tick, *Borrelia* can be found in all the tissues including salivary glands and ovaries of certain subspecies of ticks. Infected *Ornithodoros* ticks can transmit relapsing fever spirochetes to humans through their saliva while feeding. *O. turicatae* and *O. parkeri* ticks also can transmit spirochetes through secretion of infectious fluids from their coxal glands, which are excretory organs located at the base of the ticks' legs. *O. hermsi* also secretes infectious coxal fluid but in such small amounts that it dries very quickly after being secreted and, therefore, poses little or no threat to its hosts.

To prevent infection:

-  Avoid sleeping in rodent infested buildings.
-  Limit tick bites by using insect repellent containing DEET (on skin or clothing) or permethrin (applied to clothing or equipment).
-  Rodent- proof buildings in areas where the disease is known to occur.
-  Identify and remove any rodent nesting material from walls, ceilings and floors.
-  In combination with removing the rodent material, use preparations containing pyrethrins and permethrins to treat rooms or buildings. Within NPS, consult your park or region IPM specialist.

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In Partnership for nearly 100 years, the National Park Service and the United States Public Health Service have worked together to protect the health of visitors in Americas Parks!

Program Websites:

Internal:

http://www.nps.gov/public_health/intra/index.htm

External:

http://www.nps.gov/public_health/