

National Park Service

Public Health Program

Year End Report

2006



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!



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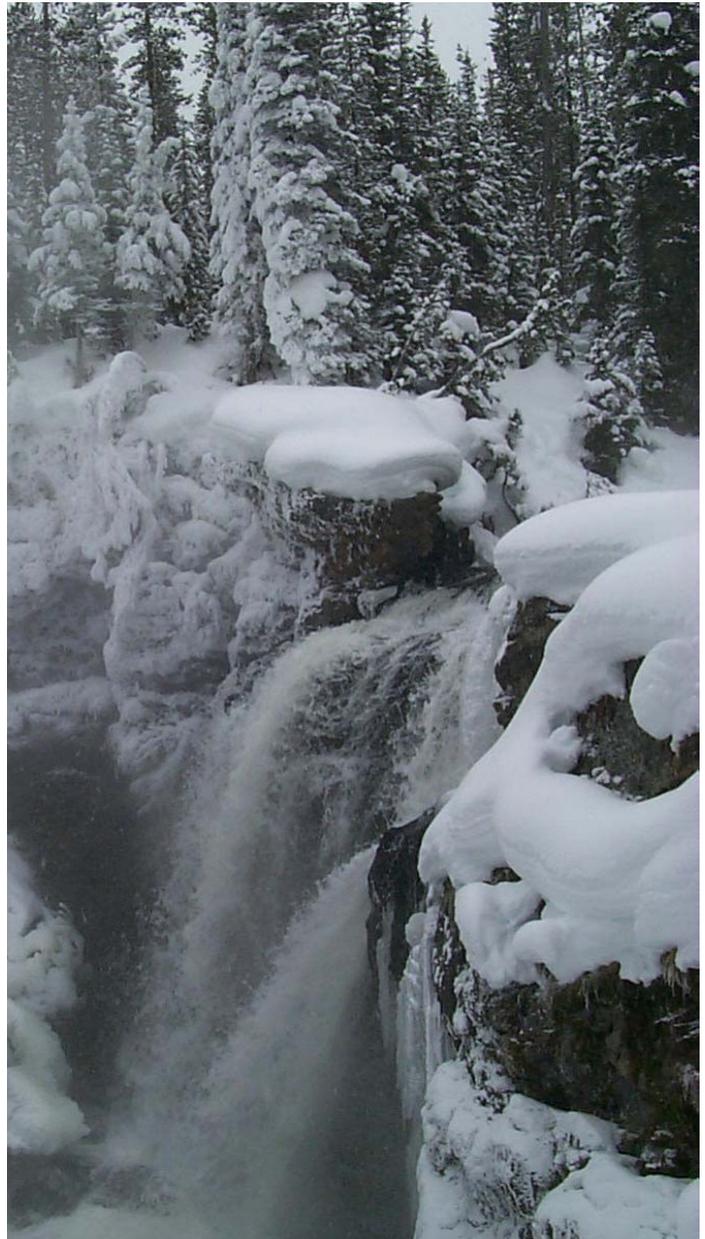
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Program Websites:

Internal:

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

External:

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

Mission

The National Park Service Public Health Program assists park managers to reduce the risk of disease transmission and improve visitor protection by:

- Determining the potential public health hazards associated with each park unit
- Evaluating the degree of control that parks have over key public health issues
- Consulting with park management and staff to improve visitor protection

Major Program Elements

1. Disease Surveillance and Outbreak Response
2. On-Site Evaluation and Consultation
 - Drinking Water Safety and Waste Water Disposal
 - Food Safety
 - Zoonotic and Vector Borne Disease Prevention
3. Emergency Preparation and Response

Program Priorities

Maintain Delivery of Park On-Site Evaluations and Consultations
Establish System-Wide Human Disease Surveillance
Establish Program Outcome Measures and Tracking



Public Health Program Fiscal Year 2006 Highlights

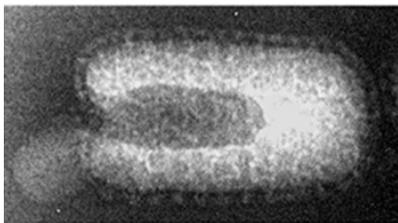
● On-Site Public Health Evaluations and Consultations

- √ Conducted 283 on-site visits
- √ Completed 508 food safety evaluations
- √ 399 inspections/consultations for events at the National Mall
- √ Evaluated 574 drinking water systems
- √ Reviewed the operation of 829 waste water systems
- √ Provided consultation on vector-borne diseases

● **Public Health Emergencies**—All of the regional consultants assisted in the response to public health emergencies which occurred at National Park units. These public health responses were primarily coordinated by a medical epidemiologist at WASO.

- √ Epidemiologist coordinated responses for 35 incidents in 7 regions
- √ Responses included collaborative investigations with 5 state health departments and 6 city and county health departments
- √ Major incidents included norovirus outbreaks at CATO, GRCA, and YELL
- √ Other incidents included:

Botulism at SLBE
Hepatitis A at GRCA
Histoplasmosis at MACA
Legionnaire's disease at NERO
Lyme disease at FIIS
Plague at COLM, MEVE, and NABR
Rabies at CAGR, CARE, PORE, and ROMO
Tick-borne relapsing fever at YOSE
Tularemia at DINO and ROMO
Vibriosis at GOGA
West Nile virus at OLBE



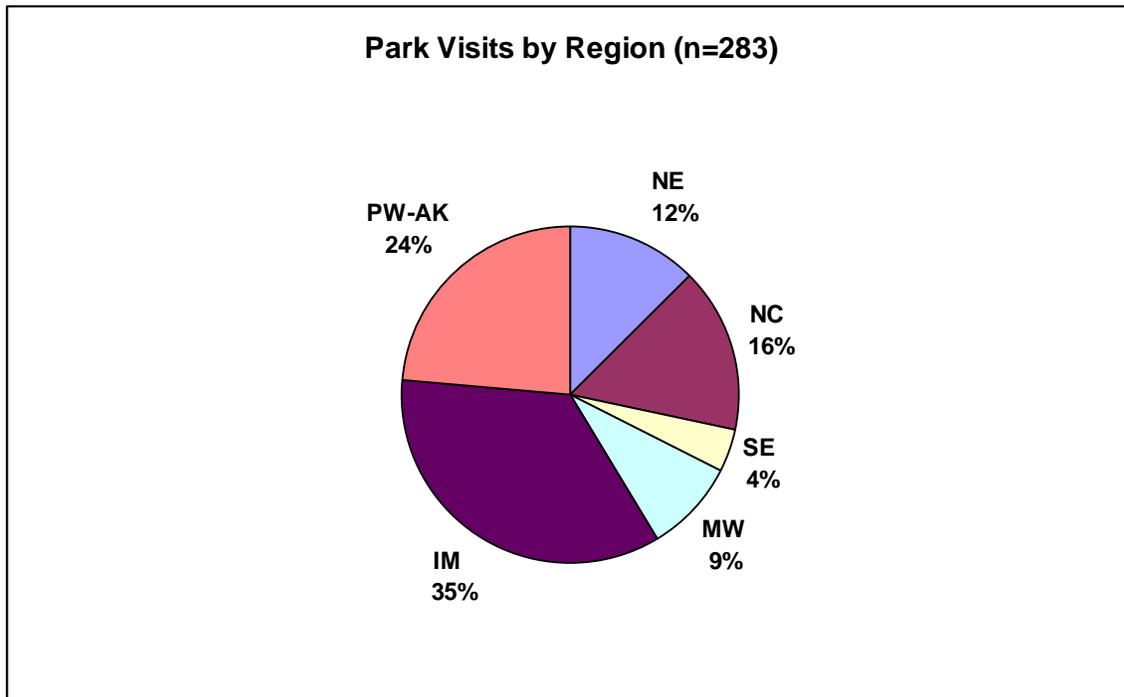
Rabies Virus

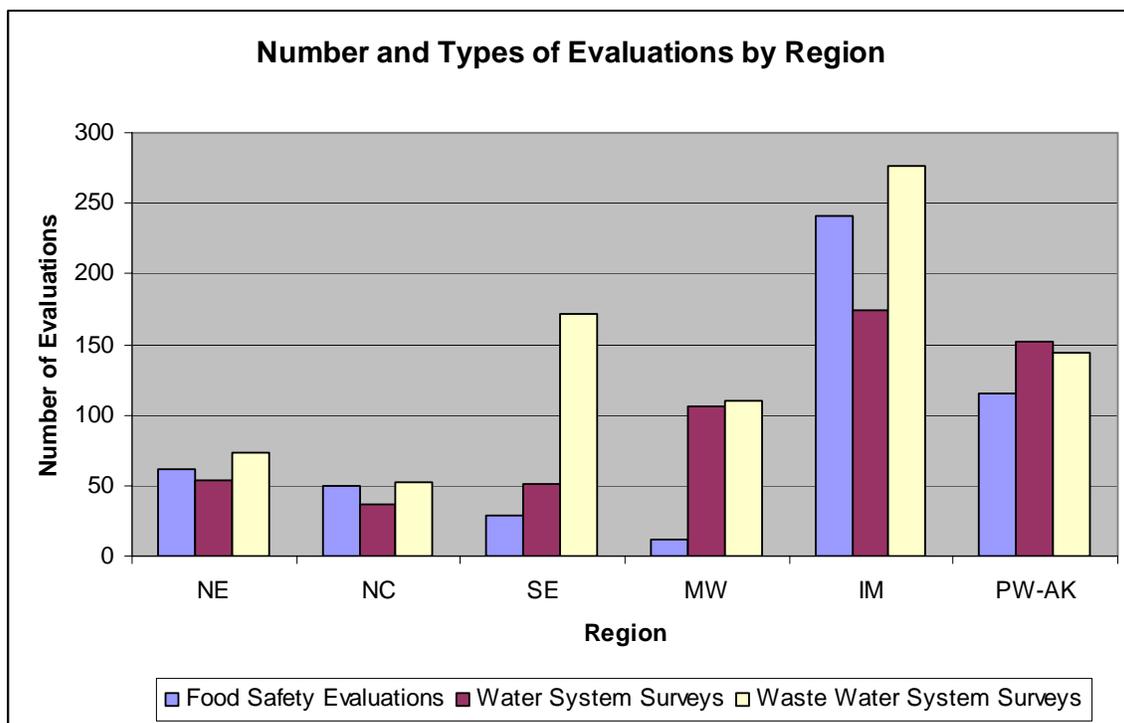
Tularemia Lesion



Region	NE	NC	SE	MW	IM	PW-AK
Park Visits	35	45	12	25	99	67
Training Courses Conducted	13	4	0	0	17	12
FS* Critical Violations	50	75	3	5	200	78
FS Non-critical Violations	92	124	30	7	151	91
FS Total Violations	142	199	33	12	351	169
Proportion Critical/Total	0.35	0.38	0.09	0.42	0.57	0.46
FS Satisfactory Ratings	50	46	29	11	226	102
FS Marginal Ratings	4	1	0	1	9	5
FS Unsatisfactory Ratings	7	3	0	0	6	8
FS Evaluations	61	50	29	12	241	115
Proportion Unsatisfactory/Total	0.11	0.06	0.00	0.00	0.02	0.07
Water System Surveys	54	37	51	106	174	152
Waste Water System Surveys	74	52	172	110	277	144

*FS = Food Service





In Depth Disease Transmission and Outbreaks

CATO—Norovirus Outbreak at a Camp for Disabled Persons

Introduction

Acute gastroenteritis frequently affects staff and visitors at National Parks and has the potential for rapid person-to-person spread. Since 2003, gastroenteritis outbreaks have

been documented at several National Parks; most outbreaks have been attributed to noroviruses, the most common cause of gastroenteritis in the United States.

Background

On July 9, 2006, an outbreak of acute gastroenteritis was reported at Camp Greentop, a camp for disabled youth and adults held at Catoctin Mountain Park (CATO). Twenty-two persons were affected in the first 18 hours, and the camp was closed on July 10. In collaboration with officials from the Frederick County Health Department and the State of Maryland Department of Health and Mental Hygiene, the National Park Service Public Health Program conducted a site visit on July 12 to investigate the potential source of this outbreak.

Methods

We discussed the outbreak and local response with the park superintendent, chief ranger, and the Camp Greentop director. We performed an informal inspection of the campground, including sleeping cabins, bathroom facilities, and the dining hall/kitchen. During a mandatory camp staff meeting, we interviewed all available staff regarding clinical symptoms, daily activities, self-hygiene habits, and travel history. No campers were available to be interviewed.

Prior to the site visit, stool samples collected from 9 symptomatic staff members were tested for noroviruses and bacteria. Well-water samples (above, in, and below the camp) were also collected and tested for bacteria. A formal inspection of the camp dining hall/kitchen was conducted on August 8.

Results

Overall, during July 9-July 11, 30 of 138 (22%) persons reported self-limited GI symptoms. Symptoms were primarily vomiting, nausea, non-bloody diarrhea, and fever and typically lasted <24 hours. 19 of 30 (63%) cases occurred among camp staff; no cases occurred among food service workers. One camper was evaluated at a nearby clinic and treated for dehydration.

55 of 75 (73%) camp staff were formally interviewed. Among symptomatic camp staff, no unique travel history or exposures were identified. Symptomatic individuals were not associated with specific camp activities or duties.

8 of 8 stool samples tested for noroviruses were positive for norovirus type G2. All stool samples (n=3) tested for bacteria were negative. All well-water samples were negative for coliform bacteria. No critical violations were cited during the dining hall/kitchen inspection.

Conclusions

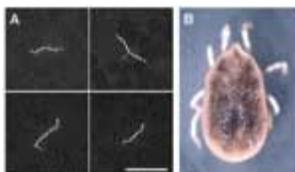
1. Noroviruses were the probable cause of this outbreak.
2. Noroviruses were likely imported into Camp Greentop by index case-patients, and subsequent person-to-person transmission was facilitated by close living quarters.
3. We found no evidence that the outbreak was caused by a contaminated food or water source within CATO.

Recommendations

1. Camp and park leadership should continue to emphasize the following during camping season:
 - a. strict hand-washing with soap and water or baby wipes
 - b. proper disinfection of surfaces and linens/laundry contaminated with stool or vomitus (using bleach solutions)
 - c. work furlough for ill staff until symptom-free for 48 hours
 - d. cohorting of symptomatic staff and campers
 - e. prompt notification of disease clusters to health officials
2. Camp leadership should consider implementation of a simple health screening questionnaire to be administered to all campers (and/or their caretakers) upon arrival.



YOSE—Tick-Borne Relapsing Fever Diagnosed in an International Visitor



Bacterial Agent *Borrelia hermsii*, cause of Tick-Borne Relapsing Fever and a tick, the vector for this agent.

Introduction

Tick-borne relapsing fever (TBRF) is caused by a rare bacterial infection transmitted to humans by the bites of soft ticks. In the U.S., most TBRF cases occur in western states, and TBRF cases have been documented in several National Parks, including GRCA and YOSE.



Background

On August 11, 2006, the NPS Office of Public Health was notified (via ParkNet) of a case of TBRF that had been confirmed in a 14-year old female resident of the Netherlands. The patient and her family had traveled in the western U.S. by RV for 3 weeks in July and had visited several National Parks. Based on the typical incubation period for the causative agent of TBRF, it is most likely that the patient was exposed during her family's visit to YOSE. Of note, in 2001, two YOSE employees were also diagnosed with TBRF.

Investigation to Date

A detailed travel itinerary and a symptom log were obtained from the patient's father. Based on this information, the NPS Office of Public Health contacted county and state health departments in AZ and CA to notify them of this case and to inquire about other TBRF cases. No recent cases had been reported to Coconino (AZ) or Mariposa and Inyo (CA) counties. The Vector-borne disease section at the CA Department of Health Services conducted an environmental investigation of the patient's RV and identified no evidence of tick infestation. As follow-up to this case, a TBRF (and other vector-borne disease) surveillance project at YOSE is currently being planned for Spring 2007.

Avian Influenza, Highly Pathogenic Asian Strain H5N1

- A relatively new and highly pathogenic strain of Avian Influenza (HPAI) is circulating in wild and domestic birds in Asia, Europe and Africa.
- While still primarily a disease of birds, this strain can infect humans and as of November 29, 2006 there have been a total of 258 human cases and 154 deaths.
- Currently the virus has not adapted to human to human transmission, but if it does, there is a potential for a worldwide outbreak (called a pandemic) that could have severe global economic and human impacts.

Background:

- Outbreaks of HPAI have been occurring in poultry in Southeast Asia since 2003. Recently, the virus has spread through much of Asia, Europe, and into several countries in Africa. Although wild birds commonly carry low pathogenicity avian

influenza viruses without harm, the Asian H5N1 Avian Influenza virus has mutated to cause disease. More than 200 million domestic birds in the affected countries have died or been culled in control efforts, and the disease has spilled into at least 40 species of wild birds and several species of mammals.

- In humans, the death rate from reported HPAI cases has been about 59%. Most cases have occurred from contact with infected poultry or contaminated surfaces. So far, spread of H5N1 virus from person to person has been rare and spread has not continued beyond one person. However, because all influenza viruses have the ability to change, scientists are concerned that the Asian H5N1 virus could one day be spread easily from one person to another. Should this happen, a worldwide outbreak of disease could begin. No one can predict when a pandemic might occur. Experts are watching the worldwide H5N1 situation very closely and are preparing for this possibility.

Current Status:

- NPS is participating in interagency work groups. For example, in the joint workgroup consisting of the DOI, Department of Health and Human Services, and Department of Agriculture, the development of an enhanced national framework for early detection of highly pathogenic avian influenza in wild migratory birds in the United States is in progress.
- A NPS interdisciplinary team has organized agency preparedness and response plans tiered off National plans. The NPS plan consists of two sub-plans, one for wildlife and another for the potential human pandemic. These plans are available at: http://www.nps.gov/public_health/intra/AI/aiindex.htm.
- Development of preparedness action plans for each park unit and office has begun and is being led by designated regional coordinators for pandemic and wildlife disease.
- Public Health Program (PHP) and Biological Resource Management Division (BRMD) Wildlife Health offices are communicating and coordinating with and assisting DOI and other bureaus in preparing response plans.
- The PHP is working with the Concessions Program in order to encourage and assist businesses operating within the parks to conduct Influenza and continuity of operations planning.
- BRMD Wildlife Health, PHP and the USGS National Wildlife Health Center, have designed and delivered several training sessions for employees involved in monitoring birds for H5N1.