



Communicable Disease and Epidemiology News

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In the Time of Ticks

While no one enjoys entertaining ectoparasites, the main concern when a tick bites is the possibility of disease transmission. Lyme disease (LD) is the most notorious tick-borne disease, but relapsing fever, tularemia, and tick paralysis can also occur in Washington state. LD is caused by infection with the spirochete, *Borrelia burgdorferi*, which can manifest itself in multiple organ systems. The first symptom is typically a rash, erythema migrans (EM), a circular, red lesion which expands from the site of the tick bite. The central portion of the lesion becomes pale, hence its 'bullseye' appearance. Secondary skin lesions sometimes appear at sites apart from the tick bite. Fever, myalgia, and lymphadenopathy may accompany the rash. However, rash does not always occur. Late sequelae to infection include arthropathy, carditis, and neurologic disorders. Early treatment with doxycycline or amoxicillin is effective in preventing the serious sequelae. Diagnosis is imprecise because of problems with nonspecific clinical signs, difficulty in obtaining a tick bite history (*Ixodes* ticks are extremely small), and sensitivity and specificity of the serological testing. In 1995, the Centers for Disease Control and Prevention (CDC) published recommendations for standardized two-step (enzyme immunoassay and Western immunoblot) serodiagnostic testing.

The CDC surveillance case definition of LD requires either the presence of an EM rash ≥ 5 cm in diameter or laboratory confirmation of *Borrelia burgdorferi* infection with evidence of at least one manifestation of musculoskeletal, neurologic, or cardiovascular disease. Nationally, there was a 41% increase of LD in 1996 over the previous year, although most cases were reported from the Mid-Atlantic, Northeast, and North Central regions. This increase probably represents a combination

of increased tick density, enhanced health care provider awareness and reporting, and improved laboratory surveillance, according to the CDC. Washington State reported 18 cases in 1996, a figure which has fluctuated over time. In King County, eight cases were reported last year, an increase from four to five cases annually in the previous four years. While *Borrelia burgdorferi* has not been isolated from a human patient (i.e. from a skin biopsy of the rash), *Ixodes* ticks (which have the potential to harbor the organism) have been identified on occasion in Washington State. The Washington State Public Health Laboratory can access, through the CDC, culture media for skin biopsies of individuals with EM who have not received antibiotics.

Prevention recommendations include the use of insect/tick repellent while hiking or working outside in brushy areas, wearing long pants tucked inside shoes, and prompt removal of ticks after outdoor activities. Ticks are best removed with blunt forceps by carefully grasping the tick as close to the skin as possible and pulling with gradual, gentle pressure until the mouth parts are pulled free. If the detached tick is still living, it may be kept alive in a jar with a few blades of grass and/or slightly moistened cotton, and the patient followed for symptoms of LD (EM, fever, myalgia, joint pain). If symptoms develop in the person from whom the tick was removed, the tick may be speciated (to the genus level only) at the Washington State Public Health Laboratory; contact Parasitology at 206-361-2871. Antibiotic prophylaxis after a tick bite is not recommended.

1996 Foodborne Illness

The number of foodborne illness complaints in 1996 increased by 9% from 1995 (1304 and 1192, respectively), while the number of outbreaks decreased slightly (106 and 114, respectively). The number of complaints and outbreaks have remained relatively

stable over the past four years after a marked increase in 1993, a reflection of increased public awareness and concern for food safety after the *E. coli* O157:H7 outbreak. Isolated gastroenteritis, defined as involving either one or two people from the same household, made up 76% of complaints. The majority of complaints (89%) were reported by citizens; a few were reported by health care providers or state or federal health agencies, and 8% were reported by vendors. Outbreak investigations were initiated in response to reports of two or more persons ill from separate households, three or more ill from the same household, laboratory confirmed cases, hospitalized cases, and any reports suggesting a chemical/toxic exposure. A foodborne outbreak is typically defined as an incident in which two or more persons experience a similar illness, usually gastrointestinal, after ingestion of a common food, or single cases of botulism or chemical poisoning.

There were three large outbreaks in 1996. In July, approximately 78 people ate at a catered wedding reception. Seventeen of the 57 respondents who ate at the event were ill, the majority with nausea and diarrhea. The foods most strongly associated with illness included peanut sauce and cake. The cook at the catering facility had a recent gastroenteritis episode, although it was questionable whether he would have been infectious at the time of the event. There were also hand washing problems at the facility noted on inspection. The food handler that prepared the cake reported no illness. The incubation period (mean=45 hours) and duration of illness (mean=45 hours) in this outbreak are most consistent with viral gastroenteritis. The second possible cause of the outbreak could have been bacterial, as the facility had problems with potential cross-contamination and sanitation. However, this could not be confirmed as none of the

respondents submitted a stool sample for testing.

In September, an outbreak occurred in two places that were related by a common food. One outbreak took place at a potluck meal at the workplace (Company B) of an individual who had brought potato salad from another event which had been catered by Company A. At the Company A event, 75 to 100 guests attended; 17 of 45 respondents reported illness, mostly with diarrhea and abdominal cramps. The mean incubation period was 37 hours and the average duration was 43 hours. The vinaigrette potato salad demonstrated the strongest association with illness. Nine of the 10 individuals who ate at Company B were interviewed and all but two reported illness. Again, the potato salad was the most common food item consumed. There were several violations noted on inspection of the catering facility related to inadequate sanitation and temperature control. However, the most likely cause of this outbreak was viral gastroenteritis, although no food handlers reported illness during this time period. A major limitation of this analysis was the low response rate from Company A.

The third and largest outbreak occurred in November in a homeless shelter that provided food prepared by a catering business. A chili and rice meal had been served to 144 people, about 120 of whom became ill with diarrhea. Approximately 45 individuals were

referred to area hospitals. Four stool samples obtained from those referred were tested and found to be positive for *Clostridium perfringens* and negative for *Bacillus cereus*. Bacterial stool cultures were negative. The most likely factor leading to this outbreak was inadequate hot holding of the final product. While none of the final product was available for testing, samples of leftover ground beef and beans were found to be negative for *C. perfringens*.

There were eleven possible or confirmed foodborne chemical or toxic exposure outbreaks characterized by immediate or non-gastrointestinal reactions. These included four possible chemical exposures, six possible or confirmed histamine poisonings, and one unconfirmed fatal mushroom poisoning. The chemical exposures included three incidents of probable inappropriate use of sanitizers, and one incident potentially caused by refrigerant leaking onto food. Only one of the incidents resulted in a consumer seeking medical attention, and this individual did not experience any lasting effects from the exposure.

The histamine poisonings included three confirmed and three suspect incidents. In the confirmed outbreaks, two tuna samples and one mahi-mahi were found to be positive for histamine. There was some prior evidence of problems incurred during the processing of the tuna which could have contributed to one of the outbreaks; no cause could be determined in

the other two outbreaks although the mahi mahi came from the same source as the tuna in the first outbreak. In two of the three suspect outbreaks, the tuna samples tested negative. One restaurant had temperature control problems with other fish and meat, although the tuna on site was stored properly. In the third suspect outbreak, escolar fish was implicated but none was available for testing; while there were no temperature control problems at the restaurant, there had been undocumented reports that the fish distributor did not use refrigerated trucks.

Finally, an unconfirmed fatal mushroom poisoning occurred in a 61 year old Laotian woman in October. She reportedly had consumed mushrooms purchased from a street-side truck vendor but the vendor was not identified and no product recovered for testing. The clinical course of her illness, particularly the fulminant hepatic failure, was classic for amatoxin toxicity.

To Report:

- AIDS296-4645**
- Tuberculosis296-4747**
- STDs.....731-3954**
- Communicable Disease 296-4774**
- 24-hr Report Line.....296-4782**
- Disease Alert:**
- CD Hotline296-4949**

REPORTED CASES OF SELECTED DISEASES SEATTLE-KING COUNTY 1997				
	CASES REPORTED IN APRIL		CASES REPORTED THROUGH APRIL	
	1997	1996	1997	1996
VACCINE-PREVENTABLE DISEASES				
Mumps	1	0	3	2
Measles	0	1	0	4
Pertussis	8	32	87	98
Rubella	1	0	1	1
SEXUALLY TRANSMITTED DISEASES				
Syphilis	0	0	3	0
Gonorrhea	49	83	312	452
Chlamydial infections	244	420	5	1515
Herpes, genital	61	82	271	318
Pelvic Inflammatory Disease	21	32	127	143
Syphilis, late	5	7	3	33
ENTERIC DISEASES				
Giardiasis	20	22	86	97
Salmonellosis	25	16	83	83
Shigellosis	10	4	40	25
Campylobacteriosis	29	31	105	125
E.coli O157:H7	2	1	9	5
HEPATITIS				
Hepatitis A	44	26	191	103
Hepatitis B	3	8	15	43
Hepatitis C/non-A, non-B	1	1	7	4
AIDS	19	17	146	215
TUBERCULOSIS	6	15	45	45
MENINGITIS/INVASIVE DISEASE				
Haemophilus influenzae	0	1	1	1
Meningococcal disease	1	5	10	14