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Menacing Mollusks

He was a bold man that first ate an oyster. Jonathan Swift, 1967-1745

Since the beginning of July 2008, Public Health has received seven reports of confirmed *Vibrio* infection in King County residents, four probable cases (cases that are epidemiologically linked to a confirmed case), and 4 suspect cases (cases with a diarrheal illness consistent with *Vibrio* infection after eating raw or undercooked shellfish). In addition, there have been 2 reports of persons outside of King County becoming ill after eating Puget Sound oysters in King County. While these numbers are not as high as those from 2006 when 28 cases of vibriosis were reported in the month of July, it is a reminder that *Vibrio* season is here.

During the 2006 vibriosis outbreak, Washington State experienced a record-breaking outbreak of *Vibrio parahaemolyticus* infection associated with consumption of raw shellfish from Washington and British Columbia. King County clinicians played a critical role in controlling the outbreak by ordering stool cultures for patients with diarrhea, inquiring about raw oyster consumption, and reporting cases promptly to Public Health. This triggered “oyster trace-back” by public health staff and rapid identification and closure of implicated shellfish harvesting sites to prevent additional infections. From May through July of 2006, oysters purchased at restaurants, seafood markets, and recreational harvesting areas were implicated in 83 confirmed and 113 probable cases in Washington State.

After the 2006 outbreak, state and local health officials as well as representatives from the shellfish industry convened to discuss lessons learned. A State Control Plan was developed for 2007, which builds upon the existing statewide system that routinely monitors commercial and recreational shellfish harvest sites for *V. parahaemolyticus*. The plan includes more stringent guidelines for temperature control of harvested shellfish.

V. parahaemolyticus lives worldwide in marine coastal environments. In warm weather, the bacteria

multiply in the gut of filter-feeding mollusks including clams, mussels, and oysters (the most common food associated with infection in the United States). **The general rule to reduce the risk of *Vibrio* infection is to avoid eating raw shellfish in warm spring and summer months. *V. parahaemolyticus* can be killed by cooking shellfish to 145°F.**

Vibriosis is the term used to describe illness caused by non-cholera *Vibrio* species including *V. parahaemolyticus* and non-toxicogenic *V. cholera*. Illness typically occurs 12-24 hours after exposure (range 4-30 hours) and lasts 1-7 days. Common symptoms include watery diarrhea, abdominal cramps, fever, nausea, vomiting, and headache. Up to 25% of cases may develop a dysentery-like syndrome with high fever, bloody or mucoid stools, and elevated peripheral WBCs. Bacteremia is uncommon and occurs mainly in persons who are immune deficient. Cases are rarely fatal. **Persons with chronic liver disease, decreased gastric acidity, diabetes, peptic ulcer, or immunosuppression are especially susceptible to infection.** Antibiotic therapy is generally not indicated except in cases of severe or prolonged illness.

Rarely, *Vibrio* can cause a skin or soft tissue infection when an open wound comes into contact with contaminated seawater.

Consider *V. parahaemolyticus* in patients with a compatible clinical syndrome, and ask about recent travel and meals. Food history should include questions about eating raw or undercooked seafood, (particularly shellfish), restaurant or purchase dates and locations, and beach locations for recreationally-harvested shellfish. **For all patients with suspected vibriosis, obtain stool cultures to confirm the diagnosis, and specify on the order form that *V. parahaemolyticus* culture is being requested so that the lab can use the proper selective culture media for *Vibrio*.**

Zebra of the Month: Scombroid Poisoning

Within minutes of eating an ahi tuna sandwich, a 29 year old man experiences mouth numbness, tingling, sweating, tachycardia, and a full body rash. He is seen at a local emergency department and diagnosed with probable scombroid poisoning. The physician reports the case to Public Health and when the restaurant is contacted a second case is discovered. The unsold fish is collected by the FDA and tests positive both for evidence of decomposition and elevated levels of histamine.

This case illustrates some of the characteristic features of scombroid poisoning. Scombroid and scombroid-like fish include tuna, mahi mahi, sardines, anchovies, yellow tail (hamachi or amberjack), and escolar. Tissues of these fish contain high levels of the amino acid histidine and when these fish begin to decompose the histidine breaks down to form histamine. When the fish is ingested, histamine intoxication can cause a tingling or burning sensation in the mouth and throat, rash on the upper body, hypotension, headaches, itchiness, tachycardia and gastrointestinal symptoms. The symptoms are typically self-limited, though antihistamines (H1 and H2 blockers) are sometimes given.

Histamine is heat stable and is not affected by cooking, canning, smoking or curing. Fish with high amounts of histamine may taste peppery or hot and may have a fishy or ammonia-like odor (but may not smell or taste odd at all). Elevations of histamine can result from mishandling of scombroid fish (keeping unthawed fish too long either in or out of refrigeration) at any point between harvest and consumption. Canned tuna, sardines and anchovies can cause histamine poisoning if mishandled prior to canning or even after being opened.

Since 1995, 27 instances of probable scombroid poisoning involving 44 people have been reported in

King County residents. Tuna or “ahi” was the fish implicated in 18 of these incidents. The second most common fish was escolar (5 incidents), followed by mahi mahi (3 incidents), and yellow tail (1 incident).

Implicated fish tested positive for either elevated levels of histamine or evidence of decomposition at the FDA in 5 of these instances. Negative results do not rule out the possibility of scombroid poisoning because decomposition may be uneven throughout the fish. There are no clinical tests to diagnose scombroid poisoning in humans. The onset of symptoms after eating contaminated fish is fast, minutes to a few hours. The presence of flushing and rash can help distinguish scombroid from other rapid-onset shell fish intoxications that may present with paresthesias.

Clusters of suspected food borne and *individual* cases of likely foodborne illness (such as scombroid poisoning, paralytic shellfish poisoning, etc), should be reported immediately to Public Health by calling 206-296-4774, day or night.

Disease Reporting

AIDS/HIV (206) 296-4645
 STDs..... (206) 731-3954
 TB (206) 731-4579
 All Other Notifiable Communicable
 Diseases (24 hours a day) (206) 296-4774
 Automated reporting line
 for conditions not immediately
 notifiable (206) 296-4782

Hotlines

Communicable Disease (206) 296-4949
 HIV/STD (206) 205-STDS

Public Health-Seattle & King County

Online Resources

Home Page: www.metrokc.gov/health/
The EPI-LOG: www.metrokc.gov/health/providers
Communicable Disease listserv (PHSKC INFO-X) at:
mailman.u.washington.edu/mailman/listinfo/phskc-info-x
West Nile Virus Updates and Testing Guidelines:
www.metrokc.gov/health/westnile/advisories.htm

Reported Cases of Selected Diseases, Seattle & King County 2008

	Cases Reported in June		Cases Reported Through June	
	2008	2007	2008	2007
Campylobacteriosis	36	21	155	98
Cryptosporidiosis	4	0	18	14
Chlamydial infections	517	404	2,975	2,484
Enterohemorrhagic E. coli (non-O157)	1	0	1	2
E. coli O157: H7	5	2	9	8
Giardiasis	14	11	57	69
Gonorrhea	111	110	671	674
Haemophilus influenzae (cases <6 years of age)	0	0	2	2
Hepatitis A	1	0	12	5
Hepatitis B (acute)	4	1	16	14
Hepatitis B (chronic)	60	64	465	413
Hepatitis C (acute)	2	0	8	4
Hepatitis C (chronic, confirmed/probable)	126	112	682	691
Hepatitis C (chronic, possible)	22	31	175	157
Herpes, genital (primary)	31	45	265	66
HIV and AIDS (new diagnoses only)	28	19	195	212
Measles	0	0	0	1
Meningococcal Disease	1	2	3	4
Mumps	0	1	1	4
Pertussis	8	15	36	35
Rubella	0	0	0	0
Rubella, congenital	0	0	0	0
Salmonellosis	16	26	94	120
Shigellosis	2	3	24	27
Syphilis	7	11	92	69
Syphilis, congenital	0	0	0	0
Syphilis, late	4	4	44	36
Tuberculosis	13	5	49	71

The EPI-LOG is available in alternate formats upon request.