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Bulletin No. 30 December 12, 2002

Outbreak of Gastroenteritis in Ketchikan – Interim Report

On December 9, 2002, the Section of Epidemiology was informed of numerous cases of gastroenteritis in Ketchikan. Reports involved sudden onset of nausea, vomiting, and diarrhea among persons affiliated with one nursing home, two elementary schools, and two daycare facilities.

As of December 12, 34 persons were interviewed, 13 were male. The ages ranged from 10 months to 93 years; median age, 28 years. The earliest case occurred on November 17 with subsequent cases occurring in December. The mean duration of illness was 2.5 days. Symptoms included nausea (76%), vomiting (70%), diarrhea (91%), hematochezia (9%), abdominal cramping (61%), feverishness (47%), chills (47%), headache (41%), body ache (47%), and fatigue (66%). Most (55%) had seen a health-care provider, 6% were hospitalized overnight. Household contacts that were also ill with similar symptoms were identified in 74% of persons interviewed. Elevated absentee rates over the previous week were reported from two elementary schools totaling approximately 60 students. Bulk stool specimens were collected for Norwalk-like viral, bacterial, and parasitic testing.

Discussion

An outbreak of gastroenteritis characterized by sudden onset of nausea, vomiting, and diarrhea is currently ongoing in Ketchikan, with demonstration of multiple foci within the community and likely person-to-person spread within households. The most likely pathogen responsible for the outbreak is a Norwalk-like virus. Investigators are attempting to determine the original source of the outbreak and confirm the diagnosis. Laboratory results are pending.

National estimates are that 65% of all nonbacterial gastroenteritis in the United States are due to Norwalk-like viruses (NLV). NLV are small RNA viruses classified as caliciviruses. Gastroenteritis due to NLV has an average incubation period of 24-48 hours (range 18-72 hours), and symptoms can last 12-72 hours. Symptoms include acute onset of abdominal cramps, nausea, vomiting, and diarrhea. Constitutional symptoms of headache, fever (101°F to 102°F), chills, and myalgia are frequently reported. Diarrhea can occur 4 to 8 times within 24 hours, and stools are described as loose to watery, without blood, mucus, or fecal leukocytes. Severe dehydration can occur. Long-term sequelae of NLV infection have not been reported.

Norwalk-like virus is acquired through ingestion of viral particles. The infectious dose of NLV is <100 viral particles, and the virus is effectively transmitted by contact with contaminated objects such as door knobs. NLVs are able to survive in chlorinated water and temperatures from 32°F to 145°F. Viral shedding in stool can persist for up to 2 weeks after resolution of symptoms. NLVs cannot be cultured and are identified by polymerase chain reaction (PCR) techniques on bulk stool samples or vomitus.

Norwalk-like viral disease usually resolves without specific treatment; however, some patients may require fluid replacement and symptomatic treatment for headache, myalgia, and nausea. No vaccines exist for NLV.

Recommendations

1. All ill individuals and families in households with ill members should meticulously and frequently wash their hands. Hand washing is vital to stop spread to other members of families.
2. All food handlers in Ketchikan should meticulously and frequently wash their hands after toileting and prior to preparing food. Food handlers who are acutely ill with vomiting or diarrhea should not work until the symptoms have ceased.
3. In schools and other institutions where illness has been observed, hard surfaces that are touched by humans, including foot traffic areas (such as counter tops, bathroom surfaces, doorknobs, handrails, telephones, and floors should be aggressively cleaned and then disinfected using chlorine bleach at a concentration of 1000 ppm (1/2 cup/gallon). Chlorine bleach at a concentration of 5000 ppm (2 1/2 cups/gallon) should be used for areas suspected of direct NLV contamination, e.g., where vomitus has occurred. Housekeeping personnel should wear gloves when cleaning up vomitus.
4. Ketchikan residents who are ill with vomiting or diarrhea should call the Ketchikan Health Center at 225-4350 to report their illness.
5. Individuals with mild illness should drink plenty of fluids to maintain their hydration status. Individuals who are severely ill should call their health care provider.

Table 1. Characteristics of Norwalk-like viruses

Characteristic	Observation	Comments
Low infectious dose	< 100 viral particles	Transmission: -droplet (vomitus), -person-to-person, -contaminated food or water
Short incubation	18-36 hours	
Short symptom duration	Abdominal cramps, nausea, vomiting, diarrhea, headache, fever, chills, myalgias	Dehydration may occur No long-term sequelae
Environmentally stable	Survives <10 ppm chlorine, freezing, and heating to 145°F	Difficult to eliminate from contaminated water
No long-term immunity	Disease can occur with reinfection	No vaccine

(Adapted from *MMWR* June 1, 2001 / Vol. 50 / No. RR-9)