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Public Health Advice  
Giardia and the Kodiak Water System

Recently, the City of Kodiak submitted two samples of municipal water (one raw, one treated) for testing by the Environmental Protection Agency (EPA) laboratory in Washington state. The tests were positive; giardia cysts were found in both raw and treated water.

Although the Alaska Department of Environmental Conservation (DEC) and the Division of Public Health have suspected the presence of giardia in the Kodiak water system for some time, this is the first time that giardia has actually been found in the water system. There is no confirmed evidence of past or present outbreaks of giardiasis (an intestinal disorder caused by a parasite, *Giardia lamblia*) caused by the Kodiak water supply. Because giardia cysts are present in the water system, it is possible that people who drink treated Kodiak municipal water could become ill with giardiasis.

In mid-December 1989, the Section of Epidemiology began investigating a concerned citizen's report of a possible increase in the number of cases of giardiasis in Kodiak. The investigation focused on interviewing known giardiasis cases and their close contacts. In addition, active surveillance for new cases was established through local physicians and the public health nurses.

From January to mid-December 1989, six laboratory-confirmed cases of giardiasis among Kodiak residents were reported to the Section of Epidemiology. Annual case-counts since 1986, by date of onset, are as follows: 1986 (6), 1987 (7), and 1988 (4). Active surveillance uncovered two additional laboratory-confirmed cases in Kodiak, bringing the total of laboratory-confirmed cases in 1989 to eight. Intensive follow-up of these new cases led to the testing of twenty family members and daycare contacts, and three other private citizens. Of the 23 specimens, 21 have been tested in the State Laboratory to date. Of these 21 specimens, 17 (81%) were negative for giardia. Three were positive; all were associated with a daycare center. These three cases were most likely due to person-to-person spread among daycare attendees and their families, a common occurrence in daycare centers. Control measures have been instituted in the daycare center.

**Investigation so far has failed to detect any evidence of a water-borne outbreak of giardia at this time.**

Because we have documented the presence of giardia in the Kodiak city water system, we are providing the following public health advice:

- Because it is likely that giardia cysts have existed in the Kodiak water system for some time, residents should not be alarmed, but they should be aware that the water system could transmit giardia.
- To eliminate any risk of acquiring giardia from the Kodiak municipal water system, persons may wish to boil their drinking water prior to consumption (bringing the water just to a boil is sufficient to kill giardia cysts).
- Home water filters may provide some benefit in preventing giardia. The filters need to have a pore diameter of less than 5 microns. Because of the small pore size, the filter can easily become clogged, allowing cysts to pass through the disrupted filter. Although clogging is less likely to occur with treated municipal water, the possibility exists that the filter could fail and allow cysts to pass through. We do not recommend home filters as an effective way to prevent giardia.
- Iodine and chlorine tablets are not adequate to kill giardia cysts and should not be used.
- Individuals with symptoms of persistent or chronic diarrhea (of longer than seven days' duration), gas, bloating, or abdominal cramping should see their private medical provider for evaluation.
- Physicians or other health care providers should report any suspected or confirmed cases of giardiasis to the Section of Epidemiology, 561-4406.

DEC will be working with the City of Kodiak to implement EPA's recommendations regarding increasing chlorination levels in the municipal water system which could decrease the probability that viable giardia cysts will enter the treated water system. However, at the present time, the only certain measure to prevent inadvertent consumption of giardia cysts from the Kodiak water supply is to boil water prior to consumption.

Illness caused by giardiasis may range from asymptomatic disease to acute gastrointestinal illness characterized by chronic diarrhea, abdominal cramping, gas, bloating, fatigue, and weight loss. Symptoms usually occur within 5-10 days after ingestion of cysts; however, they may not occur for up to 25 days after ingestion. Giardia can be diagnosed by testing a stool sample for ova and parasites. Laboratory testing for giardiasis is available free-of-charge through the State Laboratory. Because giardia is frequently found throughout Alaska and can be difficult to identify in any one individual, physicians may consider treating individuals based on clinical symptoms without laboratory confirmation. Quinacrine hydrochloride (Atabrine®) is the drug of choice; metronidazole (Flagyl®) is also effective. Furazolidone is available in pediatric suspension for young children and infants.