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ATTENTION

Public Health Update

The Westchester County Department of Health provides public health updates to members of the medical community on important issues affecting public health in Westchester

Please share this letter with your colleagues in the Departments of Internal Medicine, Pediatrics, Family Medicine, Ob/Gyn, Emergency Medicine, and Laboratory Medicine

TO: Health-Care Providers for HIV/AIDS-Infected and Other Immunocompromised Patients
Organizations serving persons with HIV/AIDS or other Immunocompromise

FROM: Ada J Huang, M.D. **AJH**
Deputy Commissioner, Disease Control

DATE: February 15, 2002

SUBJECT: Low levels of *Cryptosporidium* and *Giardia* found in the reservoirs supplying Westchester County and New York City: Advising immunocompromised patients about potential risk due to public drinking water and options for reducing such risks

- **The health significance of these findings is uncertain due to limitations of the sampling and analytic methods**
- **Low levels of *Cryptosporidium* are not felt to pose a risk to healthy people and no additional measures are necessary for the general population; routine chlorination of water is generally sufficient to kill *Giardia*, but not *Cryptosporidia*.**
- **Patients who are more severely immunocompromised (e.g., patients with HIV/AIDS, especially those with CD4 counts less than 200, patients with leukemia, patients that are post bone marrow transplantation) are at higher risk of developing cryptosporidiosis, and are potentially more susceptible to low levels of *Cryptosporidium* in the water supply. Patient information sheets on options for reducing this potential risk are attached in this document.**
- **Consider *Cryptosporidium* in the differential diagnosis of patients presenting with watery diarrhea, order appropriate diagnostic testing, and report any increase in diarrheal disease to the Westchester County Department of Health (WCDH) at 914-813-5000.**
- **There is currently no treatment for cryptosporidiosis.**

Recent water samples at reservoirs supplying Westchester County and New York City have shown a slight increase in the concentration of *Cryptosporidium* oocysts and *Giardia* cysts. The health significance of these findings is uncertain due to limitations of the sampling and analytic methods. WCDH is working with New York State and City Departments of Health, and Department of Environmental Protection (DEP) to assess water quality data, water operations, and disease surveillance information to closely monitor the situation. Other water testing parameters, including turbidity and fecal coliforms, are within acceptable levels. Disease surveillance data do not show any evidence of an increase in gastrointestinal illness that is suggestive of cryptosporidiosis. While there is not thought to be any increase in health risk to the general population, due

to the particular vulnerability of the immunocompromised population, this memorandum is being provided to help you to understand the findings so that you can advise your immunocompromised patients regarding their drinking water practices.

DEP's *Cryptosporidium* and *Giardia* Monitoring Program: Monitoring for the protozoa *Cryptosporidium* and *Giardia* was initiated in 1992, as part of its comprehensive watershed monitoring program. Samples are collected weekly from the effluents at Kensico and New Croton Reservoirs, just before the water is chlorinated. Results are regularly posted on the DEP website at: <http://NYC.gov/html/dep/html/pathogen.html>.

In October 2001, the method used for protozoan testing was changed from the EPA Information Collection Rule (ICR) test to the EPA Method 1623, which is a more sensitive assay. It was anticipated that as a result of this change in analytical method, the frequency and/or concentration of *Cryptosporidium* oocysts and *Giardia* cysts would increase, and it is possible that recent findings are a consequence of this change. At the present time, there are no EPA numerical standards for *Cryptosporidium* and *Giardia* in drinking water.

The Risk of Disease due to Small Numbers of *Cryptosporidium* Oocysts in Drinking Water is Not Known: The significance of finding small numbers of *Cryptosporidium* in municipal water supplies to the public's health is not known. Due to inadequacies in the current methodologies for testing for *Cryptosporidium* oocysts in water supplies, public health decisions cannot be based on *Cryptosporidium* test results alone. Testing does not distinguish between viable (potentially infectious) oocysts and non-viable ones. The test also cannot distinguish among the various species of *Cryptosporidium*, not all of which are infectious for humans.

Recent *Giardia* and *Cryptosporidium* Test Results in NYC Water Samples:

Since the implementation of Method 1623 in October 2001, the concentration of *Giardia* cysts in the City's reservoirs has ranged from 0 – 4 per 50 L. The concentration of *Cryptosporidium* oocysts has ranged from 0 -2 per 50 L. In two samples in February, slightly elevated levels of cysts and oocysts were detected. (i.e. *Giardia* levels of 1-6 cysts per 50 L and *Cryptosporidium* levels of 1-2 oocysts per 50 L). These results prompted additional sampling.

On Monday February 11th, test results were as follows:

Catskill and Delaware system outlets from the Kensico Reservoir:

Cryptosporidium: 1- 2 oocysts per 50 liters
Giardia: 4 - 9 cysts per 50 liters

Croton Reservoir:

Cryptosporidium: 5 oocysts per 50 liters
Giardia: 0 cysts per 50 liters

Additional sampling is currently being performed at these sites. All other water testing parameters, including turbidity and fecal coliforms, are within acceptable levels.

No evidence of increased diarrheal disease or cryptosporidiosis have been detected: Disease surveillance systems are in place at WCDH, NYCDOH, and DEP, and have been reviewed to assess whether there has been any increase in diarrheal illness, or specifically any increase in cryptosporidiosis. Reported cases of cryptosporidiosis during the month of February have not increased; however with an incubation period averaging 10 days, illness due to the above findings would not yet be expected. Cryptosporidiosis has been a reportable disease in Westchester County and New York State since January 1994.

Please consider *Cryptosporidium* in the differential diagnosis of patients presenting with watery diarrhea and report any increase in diarrheal disease to the Westchester County Department of Health:

Most clinical laboratories do not perform *Cryptosporidium* testing as part of a routine ova and parasite examination. If you suspect your patient may have cryptosporidiosis, your order for laboratory testing should specifically request a test for *Cryptosporidium* (e.g., modified acid fast staining, immunofluorescent antibody staining, or ELISA).

All positive *Cryptosporidium* tests should be reported routinely to the WCDH. If you observe an increased number of patients presenting with watery diarrhea, please contact the Division of Disease Control immediately:

914-813-5159
914-813-5000

Monday-Friday 8:30AM – 4:30 PM
7 days/week, 24 hours/day

Advising Immunocompromised Patients about *Cryptosporidium* and Drinking Water

The risk of becoming infected with *Cryptosporidium* due to drinking tap water is unknown. Low levels of *Cryptosporidium* are not felt to pose a risk to healthy people and no additional measures are necessary for the general population. However, patients who are more severely immunocompromised (e.g., patients with HIV/AIDS, especially those with CD4 counts less than 200, patients with leukemia, patients that are post bone marrow transplantation) are at higher risk of developing cryptosporidiosis, and may potentially be more susceptible to low levels of *Cryptosporidium* in the water supply. Because there is no treatment for cryptosporidiosis, such patients may be unable to clear the infection. There is currently no treatment for cryptosporidiosis.

For more information:

Patient information sheets on options for immunocompromised patients to reduce potential risks for cryptosporidiosis and a New York State DOH fact sheet on cryptosporidiosis are attached at the end of this document and can be reproduced. The latter also is available at the New York State Department of Health website at <http://www.health.state.ny.us/nysdoh/cpconsumer/crypto.htm>.

For more information about New York City's drinking water contact DEP at (718) DEP-HELP or visit DEP's website at <http://NYC.gov/html/dep>.

Information is also available by calling EPA's Safe Drinking Water Hotline at (800) 426-4791 (9:00 am-5:30 pm, M-F) or from CDC's website at <http://www.cdc.gov>.

The DEP, WCDH, NY State DOH, and NYCDOH will continue to monitor closely ongoing water test results as well as our surveillance systems and alert you if the levels of *Cryptosporidium* in the water supply or diarrheal illness in the community increase. All water test results will be posted on DEP's website at: <http://NYC.gov/html/dep/html/pathogen.html>.

Thank you for your assistance and cooperation.

Acknowledgements: We wish to acknowledge and thank the New York City Department of Health, especially Marcelle Layton, M.D. and Sharon Balter, M.D. for providing most of the above information.

Measures for Reducing Potential Risk for Cryptosporidiosis

Immunocompromised patients may wish to reduce their potential risk of cryptosporidiosis due to drinking water by taking any one of the following measures. To be effective, these precautions must be taken at all times (i.e., both inside and outside the home).

(a) Bring tap water to a full boil for one minute before use. This will kill all microorganisms, including *Cryptosporidium*.

- To avoid a burn injury, allow water to cool before pouring into a clean, dry container.
- Boiled water should be use for ice cubes, brushing teeth, preparing salads, and mixing with concentrates. Boiled water is not necessary for preparing food that will be cooked before eating.
- Dishes, silverware, pots, and pans may be washed with tap water as long as they dry before being used.

(b) Point-of-use filters with an absolute pore size of less than or equal to one micron in diameter will remove *Cryptosporidium*.

- This would include, but is not limited to, filters that are certified by the National Sanitation Foundation (NSF) for “absolute cyst removal of particles \leq one micron”, or standard #53 (cyst reduction). The certification seal can be found on the filter.
- Follow manufacturer's directions for routine maintenance and replace filters according to schedule.
- Filters that are labeled with the words “Reverse Osmosis” will also remove *Cryptosporidium*.
- The filters commonly used for chlorine and metals removal (e.g. Brita® brand) filter are not NSF-certified for cyst reduction or removal.

(c) Bottled water is not necessarily free of *Cryptosporidium*.

- Bottled water from a surface water source offers the same risk of cryptosporidiosis as tap water from the same source unless additional treatment is provided. Bottled water can be considered free of *Cryptosporidium* if it has been treated by submicron filtration (< 1 micron), reverse osmosis, or distillation. Bottled water that comes from deep ground water sources (e.g., well water) is more likely to be free of *Cryptosporidium* than bottled water from surface water sources.
- Only bottled waters certified by the NYSDOH for sale in NY should be considered. Look for the NYSDOH certification identifier on the label (NYSHD Cert. # XXXX). A list of certified bottled waters for sale in NY, along with their sources can be obtained from the NYSDOH at 1-800-458-1158.

(d) It is important that patients be aware of all other precautions that are needed to prevent cryptosporidiosis

- Avoid sexual practices that may result in exposure to feces.
- Avoid drinking water directly from lakes, rivers, ponds or streams.

- Avoid swimming in lakes, rivers, streams, ponds, public swimming pools, or recreational water parks.
- Avoid working with diaper-aged children or caring for persons with diarrhea.
- Avoid contact with feces of all animals, particularly young farm animals such as calves.
- Always wash hands thoroughly:
 - after any contact with animals;
 - after any contact with soil (e.g., gardening);
 - after changing diapers;
 - before eating, or preparing food.

Cryptosporidiosis
(crip-toe-spor-id-i-o-sis)
Information for People with Weakened Immune Systems

What is cryptosporidiosis?

Cryptosporidiosis is an intestinal illness caused by a microscopic parasite called *Cryptosporidium*.

Is cryptosporidiosis a new disease?

Although *Cryptosporidium* is not new, it was not recognized as a cause of human disease until 1976. Cryptosporidiosis was added to the list of reportable diseases in New York State in February 1994.

How common is cryptosporidiosis?

The number of cryptosporidiosis cases that occur each year is not yet well documented. Since the disease has recently been added to the list of reportable diseases, state and county health departments are now beginning to record the number and location of identified cases so that public health control measures can be developed. In 1994, 302 cases were reported to the New York State Department of Health. However, more cases may have occurred that were not detected, either because the *Cryptosporidium* stool test may not have been requested by the health care provider or the laboratory may have failed to use the necessary tests to identify it.

What are the symptoms of cryptosporidiosis?

The most common symptom is diarrhea which is usually watery. It is often accompanied by abdominal cramping. Nausea, vomiting, fever, headache and loss of appetite may also occur. Some people infected with *Cryptosporidium* may not become ill.

Who is susceptible to cryptosporidiosis and how long does the illness last?

All people are presumed susceptible to infection with *Cryptosporidium*. In healthy individuals with normal immune systems, signs and symptoms generally persist for two weeks or less. However, immunocompromised persons (those with weak immune systems) may have severe and long lasting illness. Some examples of immunocompromised people are those receiving cancer chemotherapy, kidney dialysis, steroid therapy, people with HIV/AIDS and patients with Crohn's disease.

How long after exposure do symptoms appear?

The incubation period may range from one to 12 days with an average of seven days.

How is the disease contracted?

Cryptosporidium is shed in the feces of infected humans and animals. People become infected by ingesting the organism. *Cryptosporidium* can be spread by person-to-person or animal-to-person contact and by drinking contaminated water. Infected individuals can shed the organism in their stool for several weeks after they recover from the illness. Because cryptosporidiosis is transmitted by the fecal-oral route, the greatest potential to transmit the organism comes from infected people who have diarrhea, people with poor personal hygiene and diapered children.

Does past infection with *Cryptosporidium* make a person immune?

Some immunity appears to follow infection but the degree to which a previously infected person is immune to subsequent *Cryptosporidium* infection is unclear. Exposure to a large dose of the parasite could result in recurrent illness.

How is cryptosporidiosis diagnosed?

The infection is diagnosed by identifying the parasite during a microscopic examination of the stool. When a person with diarrheal illness is suspected of having cryptosporidiosis, the health practitioner should specifically request a *Cryptosporidium* test, since most laboratories do not yet routinely perform the necessary tests needed to identify this particular microscopic parasite. A *Cryptosporidium* test should

specifically be ordered for people with HIV/AIDS or other immunocompromised patients (for example, cancer or transplant patients) who are being treated for diarrhea.

How is cryptosporidiosis treated?

There is no specific treatment for cryptosporidiosis. However, some patients may respond to certain antibiotics. Oral liquids or intravenous fluids are sometimes necessary if dehydration occurs. Anti-diarrheal drugs which reduce the motion of the intestines may provide some temporary improvement. Patients with cryptosporidiosis should obtain nutritional counseling through their health care provider to discuss their diet and how best to minimize the symptoms of their diarrhea.

How can I avoid getting and transmitting cryptosporidiosis?

You can minimize the chances of acquiring and spreading the infection by thoroughly washing your hands after using the toilet, changing diapers or coming into contact with fecal material in any way. Because cattle are a common source of *Cryptosporidium*, do not drink raw milk and be sure to wash your hands thoroughly after contact with cattle or other farm animals. Avoid drinking untreated and inadequately filtered surface water when camping or when traveling in developing countries. Comply with any water advisory issued by local and state authorities.

Has *Cryptosporidium* been found in New York State water systems and is it easily detectable?

It is believed that *Cryptosporidium* has always been present to some degree in water. Recently, it has been found in low numbers in some drinking waters derived from surface water sources (streams, lakes or reservoirs) in New York State and across the nation. There have been no waterborne outbreaks of cryptosporidiosis identified in New York State. Only laboratories with specialized testing capabilities can detect the presence of *Cryptosporidium* cysts in water. Laboratory tests are not very reliable at this time and they cannot tell whether the cyst is alive or dead.

Should immunocompromised persons take extra precautions to minimize their risk of cryptosporidiosis?

Because cryptosporidiosis can be a severe disease in immunocompromised persons, such individuals should discuss the need for extra precautions with their health care provider to minimize their risk of infection. Contaminated drinking water is only one of a number of ways in which cryptosporidiosis can be acquired. Here are some suggested steps to reduce risk of infection:

- Wash hands thoroughly after changing diapers or whenever fecal soiling occurs.
- Avoid sexual practices that may result in hand or mouth exposure to feces, such as oral/anal contact (rimming).
- Avoid direct exposure to cattle and other farm animals. If exposure cannot be avoided, wash your hands thoroughly immediately thereafter.
- Avoid swallowing water when swimming, especially in lakes, ponds or rivers. There has been one documented case of *Cryptosporidium* transmitted to a number of people who swam in a recreational wave pool and apparently swallowed the water.
- Thoroughly wash all fruits and vegetables. Avoid drinking unpasteurized apple cider, since there has been a documented incident of *Cryptosporidium* transmitted through fresh cider made from apples gathered in a field in which cows were grazing.

If an outbreak of waterborne *Cryptosporidium* is identified (none has been to date in New York), immunocompromised patients should carefully and consistently comply with all public advisories and notices issued by the local or state health department. The four items listed below may help immunocompromised patients and their health care providers decide whether to take extra routine precautions with drinking water under normal, nonoutbreak conditions:

- Boiling water for at least one minute with a rolling boil will kill *Cryptosporidium*.
- Properly drilled and maintained wells that utilize underground water are generally protected from surface contamination and are unlikely to contain *Cryptosporidium* cysts.
- Unless it is distilled or pasteurized, bottled water may not be any safer than tap water. Those bottling companies using properly designed and operated groundwater sources have a very low likelihood of producing water containing *Cryptosporidium* cysts. Those companies using surface water sources have the same risk of cryptosporidiosis as tap water from the same source unless additional treatment is undertaken. Current standards for bottled water do not guarantee that the water is *Cryptosporidium* free. Bottled water sold in New York must also include on the label whether the water comes from a well, spring or municipal source. A list of bottled waters certified for sale in New

York along with their sources can be obtained from the New York State Department of Health at 1-800-458-1158.

- During an outbreak of cryptosporidiosis in Milwaukee in 1993, one study showed that less diarrhea occurred in houses using water filters with a pore size less than 2 microns as compared to others using filters with large pore sizes. If home water filters are used, follow the manufacturer's instructions supplied with the unit. The instructions will provide information on filter maintenance needed to prevent clogging and ensure proper filtration. Filters should be certified by the National Sanitation Foundation (NSF) or an equivalent testing agency for cyst removal.

For additional information, contact your health care provider or your local or state health department.

New York State Department of Health

Send questions or comments to: nyhealth@health.state.ny.us

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