

The municipal water situation in Walkerton has had many impacts throughout the province. At the Health Unit we have felt these effects in a number of ways. We anticipate that as physicians you may also be experiencing a change in your practices and the kinds of inquiries that you receive from your patients. This notice has been written in an attempt to anticipate and assist with these demands. It includes some information on the issues that we are presently facing regarding drinking water safety, as well as an overview on E. Coli 0157:H7.

Drinking Water Safety in Leeds, Grenville and Lanark

In the Tri-County we have not experienced any incidents with municipality water contamination in recent years (not withstanding the water main disruption in Perth in January of this year). Directives from the province have been given for more direct reporting procedures between municipalities, the Ministry of the Environment and public health units to further safeguard municipal water.

Approximately half of all citizens in the Tri-County are on individual household wells. Historically a significant number of such wells do have nitrates and / or coliforms found upon testing. Our recommendation is that household wells be tested at least annually. Testing of individual home well-water is available free of charge at any of our offices as well as some municipal / township offices. Presently there is a tremendous rush on home well-water testing, as well as an increase in reporting to us of positive test results from wells. The public health laboratories are experiencing some difficulty in keeping up with the demand for water-sample bottles, and for this reason we suggest that individuals seeking to have testing done telephone our Health Action Line at 1-800-660-5853.

E. Coli 0157:H7

E. Coli (Escherichia Coli) is a type of bacteria commonly found in the intestines of humans and animals. Despite this a number of strains of E. Coli are pathogenic. E. Coli 0157:H7 (also known as Verotoxin-producing Escherichia Coli - VTEC), the strain implicated in the Walkerton outbreak, is the most pathogenic strain of E. Coli.

Verotoxin-producing Escherichia Coli (VTEC) can cause symptoms such as stomach cramps, vomiting and diarrhea which may go from watery to bloody and sometimes fever. After the bacteria are ingested (an extremely small infective dose may cause symptoms) it can take as little as 12 hours or as long as 3-10 days before symptoms begin.

The following may influence the time it takes for symptoms to occur:

E. Coli 0157:H7 (VTEC)

Drinking-water Safety and the Leeds, Grenville and Lanark District Health Unit

1. The actual number of organisms ingested the higher the number ingested, the sooner the possibility of symptoms (the relatively greater concentration of toxin made).
2. The health status of the individual the weaker or less healthy, the sooner the possibility for symptoms.
3. The individual's natural resistance to either (a) the growth of the organism within the intestine, or (b) the effect of the toxin itself. Different people may respond differently.

Usually, the disease is self-resolving within about eight days. Children and the elderly are more prone to the complication of hemolytic uremic syndrome. Suspected cases should have their renal function and complete blood count monitored.

E. Coli 0157:H7 infections can be spread by many food sources such as undercooked ground beef, unpasteurized milk and apple cider, ham, turkey, roast beef, raw vegetables, cheese and contaminated water. This infection can be passed from person to person, by hand-to-mouth contact (fecal-oral route). To minimize the potential for infection we recommend that meats be well-cooked and that all surfaces that have come in contact with uncooked meat be disinfected (including, of course, hand-washing).

Under the Health Protection and Promotion Act, all cases of E. Coli 0157:H7 infection must be reported to the Health Unit. During acute illness infected patients should not be employed to handle food or to provide child or patient care.

Fluid and electrolyte replacement is important when diarrhea is watery or there are signs of dehydration. **Recent evidence suggests that the use of antimicrobials may precipitate hemolytic uremic syndrome.** () (2)

If you have any questions or comments on these or other issues please do not hesitate to contact us at the Health Unit.

References:

- (1) New England Journal of Medicine-<http://www.nejm.com/content/wong/1.asp>
- (2) Control of Communicable Diseases Manual

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The Leeds, Grenville & Lanark District Health Unit

For more information call the Health Protection Department 345-5685 or 1-800-660-5853.

By Henry Garcia, Director of Health Protection

What is E. coli

Escherichia coli, called E. coli for short, is the name of a group of bacteria commonly found in the intestines of humans and animals. There are different types of E. coli, some of which are not harmful to people, and some which cause serious illness. It is commonly known as "hamburger disease" The bacteria causing the outbreak in Walkerton is the rare and most toxic strain of this group and is identified as E.coli 0157-H7.

Verotoxin-producing Escherichia coli (VTEC) are bacteria that can cause symptoms such as stomach cramps, vomiting, fever and diarrhea which may go from watery to bloody. After the bacteria are ingested it can take as little as 12 hours or as long as 3 to 10 days before symptoms start. The illness usually lasts 7 to 10 days. This infection is strongly associated with Hemolytic Uremic Syndrome (HUS) a leading cause of kidney failure in the elderly and young children.

Symptoms of Hemolytic Uremic Syndrome

Symptoms of HUS may include irritability, fatigue, paleness of the skin, puffiness around the eyes and ankles, and a decrease in the amount of urine produced. It is important to watch for symptoms of HUS in a child even after a child's diarrhea starts to clear up.

Transmission of E. coli infection

E. coli can be present in drinking water primarily through the contamination of the water system with animal or human wastes.

Healthy beef and dairy cattle may carry the E. coli bacteria in their intestines. The meat can get

contaminated with the bacteria during the slaughter process. When beef is ground up, the E. coli bacteria are mixed throughout the meat, thus the relationship to "hamburger disease".

E. Coli O157:H7 infections can be spread by many food sources such as undercooked ground beef, unpasteurized milk and apple cider, ham, turkey, roast beef, sandwich meats, raw vegetables, cheese and contaminated water. Once someone is infected, the bacteria can be passed from person-to-person, by hand-to-mouth contact (fecal-oral route). People who are infected with E. coli are very contagious. Poor hand washing and improper food handling are major factors that lead to the spread of the illness.

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Approximately half of all citizens in the Tricounty are on individual household wells. Historically a significant number of such wells do have nitrates and / or coliforms found upon testing. Our recommendation is that household wells be tested at least annually but preferably once during the spring and once during the autumn seasons. Testing of individual home well water is available free of charge through any of the Health Unit offices. Sampling bottles are also available at some Township offices, these however must be returned, when filled, to any of the Health Unit Offices for transportation to the Public Health Laboratories for analysis.

Drinking Water and E.coli

The Leeds, Grenville & Lanark District Health Unit

Drinking Water Safety Activities at the Health Unit

The municipal water situation in Walkerton, Ontario has had many impacts throughout the province. At the Health Unit we have felt these effects in a number of ways:

Presently there is a tremendous rush on home well-water testing, as well as an increase in reporting to us of positive test results from wells. The public health laboratories are experiencing some difficulty in keeping up with the demand for water-sample bottles, and for this reason we suggest that individuals seeking to have testing done telephone our Health Action Line at 1-800-660-5853.


Directives from the province have been given for more direct reporting procedures between municipalities, the Ministry of the Environment and public health units to further safeguard municipal water supplies.

The Health Protection Branch of the Ministry of Health has issued a directive to all laboratories to report to local health units on all positive results from private water samples.

Many inquires have been lodged with staff on various aspects of private residential water systems in regards to bacterial contamination and protection of wells systems.

Our Health Unit is representing eastern Ontario health units in an attempt by the Ministry of Health to establish improved communication links on water test results between the public, the laboratories and health units

Prevention of E. coli infections

 Wash all fruits and vegetables before eating with safe drinking water .

- ✎ Thorough hand washing with soap is an important preventive measure. Make sure hands are properly washed after using the toilet, handling diapers, pets, livestock and before preparing food.
- ✎ Clean and sanitize counter tops and utensils after contact with raw meats and poultry. Household bleach, ¼ cup (60 ml) diluted in 1 gallon of water, may be used to sanitize surfaces. Caution to keep bleach out of reach of small children as liquid is toxic.
- ✎ If ill with diarrhea, avoid preparing or handling food.
- ✎ Avoid shaking laundry, especially soiled bedding, clothing, diapers etc. Improper handling of laundry can further spread the bacteria.
- ✎ Cook ground beef thoroughly to an internal temperature of 70C or until the juices run clear and the meat is no longer pink. The bacteria are killed by high cooking temperatures.
- ✎ Drink only pasteurized milk and apple cider. Never let youngsters sample milk directly from the animal.
- ✎ Keep cold foods at 4 C or lower. Keep hot foods at 60 C or higher.
- ✎ If possible, separate work areas and utensils for preparing raw and cooked foods.
- ✎ If your water supply is a well or cistern and you are not sure of the quality of your drinking water, test the water.

For more information call the Health Protection Department 345-5685 or 1-800-660-5853.