

Subject: Norovirus transmission from a reusable grocery bag

The following foodborne outbreak highlights the ease by which cross-contamination can occur. This is a rare case of an inanimate object, a reusable grocery bag, acting as a host to a dangerous virus.

In October 2010, seventeen girls aged 13-14 years old of an Oregon soccer group and four adult parent-chaperones traveled to King County, Washington for a weekend soccer tournament. They traveled on Friday afternoon in private automobiles, stayed in a local hotel, shared rooms and bathrooms, and ate at local restaurants. They also bought some packaged cookies, chips, and fresh grapes that they kept in a reusable grocery bag. The cookies and chips were in reusable open-top packages but remained unopened until Sunday lunch. The reusable grocery bag was kept in a bathroom.

Shortly after midnight on Saturday, one delegate started vomiting and having diarrhea and decided to move in with her chaperone for the rest of the night when her symptoms continued. She used the chaperone's bathroom where the reusable grocery bag containing fresh grapes and unopened bags of cookies and chips was kept. She did not touch the reusable grocery bag or its contents. They returned to Oregon on Sunday morning and did not return to participate in the tournament. The chaperone later experienced foodborne illness.

The reusable grocery bag with the food remained with the rest of the Oregon team and was passed among the members as part of the Sunday lunch. They returned to Oregon on Sunday afternoon and within 72 hours of their return, seven other members of the group reported vomiting and diarrhea for 1-7 days. No one was hospitalized. There were no similar reports of foodborne illness from the other groups who participated in the tournament or from patrons of the restaurants.

The Oregon Public Health Division connected all the variables of this case only upon learning of the reusable grocery bag kept in the bathroom where the delegate vomited and had diarrhea. It was sufficient to touch the reusable grocery bag and contaminate one's hands. The noroviruses were then transmitted to the food (cookies or chips or grapes) upon retrieving them from the bag and the microorganism was ingested when the foods were eaten.

Noroviruses are the world's leading cause of gastroenteritis and the United States' most common cause of foodborne illness. They are highly contagious

and require only a small number of cells to infect. Routes of transmission are fecal-oral (via contaminated hands), airborne (aerosolization of vomit and feces), and environmental via fomites (inanimate objects, such as grocery bags). Contaminated hands can transfer the viruses up to 7 clean surfaces. Aerosolized viruses in vomit and from flushing the toilet contaminate surfaces and fomites that when touched by hands, are easily transmitted.

Lessons learned:

1. Do not store food in a bathroom.
2. Aerosolized viruses occur and land on surfaces and objects. The entire area where aerosolization occurs must be disinfected, including objects.
3. If possible, confine the ill person to the use of one bathroom. There must be a standard operating procedure used for cleaning and disinfecting bathrooms, surfaces, and objects.
4. Reusable grocery bags must be washed before using.

When juices from raw meat and seafood or when eggs crack in the bag, the bag becomes contaminated with harmful microorganisms. When the customer then places in the bag fresh produce to be served ready-to-eat, or other foods (packaged or otherwise), those foods and the hands touching those foods may also become contaminated. When the customer places the contaminated bag with groceries and produce on the check-out counter, the surfaces, food, objects, and other shoppers may be contaminated and continue the cross-contamination may continue from the grocery store to the home.

This case introduces an interesting question: how should stores protect their staff, customers, and goods from contaminated reusable bags?

If handled properly, single service items do reduce the risk of cross-contamination. Today, however, we have various other factors to consider including social, economic, environmental, public concerns, and physical effects, among others.

SOURCE:

Repp, K.K. and Keene, W. E. May 9, 2012. A Point-Source Norovirus Outbreak Caused by exposure to Fomites. Brief Report in the Journal of Infectious Diseases, pages 1-3.

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