

Investigators trace of role reusable grocery bag in norovirus outbreak

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Oregon investigators recently mapped the trail of an outbreak of a nasty stomach bug among participants in a girls' soccer tournament to a reusable open top grocery bag stored in a hotel bathroom. Their findings, which illustrate the role that inanimate objects can play in spreading norovirus infection, appear in *The Journal of Infectious Diseases*.

Noroviruses are a leading cause of [gastroenteritis](#) worldwide and the most common cause of [foodborne outbreaks](#) in the United States. Highly contagious, even in low concentrations, the viruses spread efficiently from feces and vomit by direct contact or by indirect transmission from [viral contamination](#) of surfaces. In October 2010, a cluster of gastroenteritis that appeared in a group of people with no apparent direct physical contact with a pathogen challenged investigators to find the cause and take appropriate [control measures](#).

In the study, Kimberly K. Repp, PhD, MPH, of Oregon Health and Sciences University, and William E. Keene, PhD, MPH, of the Oregon Public Health Division in Portland, investigated an outbreak in a group of 17 Oregon girls, 13-14 years old, and their four adult chaperones attending a soccer tournament in Washington state. All had traveled in private automobiles, shared hotel rooms, and eaten at local restaurants. Eight cases were identified, including the index patient who was presumably infected prior to the trip. There was no direct contact between the original patient and her teammates after her symptoms began; before her overt symptoms began she left her room and moved in with a chaperone. The girl subsequently began vomiting and having

diarrhea in the chaperone's bathroom. The outbreak affecting the rest of the team began several days later; they were exposed by handling a bag of snacks that unfortunately had been stored in the hotel bathroom. Virus aerosolized within the bathroom likely settled onto the grocery bag and its contents. Matching viruses were found on the reusable shopping bag two weeks later.

The investigation confirmed the great potential for contamination of surfaces in [norovirus](#) outbreaks on cruise ships, in nursing homes, and in other group settings. "While we certainly recommend not storing food in bathrooms," the authors note, "it is more important to emphasize that areas where aerosol exposures may have occurred should be thoroughly disinfected; this includes not only exposed surfaces, but also objects in the environment" that could become contaminated and spread infection. The authors point to some of the practices that can be put in place to limit outbreaks caused by such indirect contact, including disinfection of affected areas and the use of multiple bathrooms with one dedicated for use by those who are sick.

In an accompanying editorial, Aron J. Hall, DVM, MSPH, of the Centers for Disease Control and Prevention, notes that noroviruses "are perhaps the perfect human pathogens," causing an estimated 21 million cases of acute gastroenteritis annually in the U.S. alone. The investigation of this outbreak, as reported by the study authors, "provides a fascinating example of how a unique exposure and transmission scenario can result in a norovirus outbreak."

Fast Facts:

1. Norovirus can spread infection through contact with surfaces and objects contaminated by aerosolized particles.
2. Noroviruses are highly contagious, even in low concentration, and the

viruses spread efficiently from feces and vomit by direct and indirect contact.

3. Noroviruses are the leading cause of endemic diarrheal disease across all age groups, the leading cause of foodborne disease, and the cause of half of all gastroenteritis outbreaks worldwide.

4. Whenever possible, ill persons should use a separate bathroom to reduce the potential for spread of the virus. Notify family members or cleaning staff about the need for thorough disinfection of surfaces.

Provided by Infectious Diseases Society of America

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