

C. parvum, and one was identified only as positive for *Cryptosporidium* spp. *C. parvum* also was detected in swimming pond water and calf fecal samples. Failure to detect *Cryptosporidium* in some infected patients is typical; the parasite is shed intermittently, and often only one stool specimen is collected per patient. Health-care providers do not request *Cryptosporidium* testing regularly, and routine laboratory testing of stool specimens often does not include *Cryptosporidium*.¹ The actual number of infected firefighters might have been larger than reported because healthy persons infected with *Cryptosporidium* frequently are asymptomatic and thus they would not have met the case definition. Symptoms typically are self-limiting and can include watery diarrhea, abdominal cramps, low-grade fever, nausea, vomiting, and weight loss.^{1,4} In this outbreak, the immunocompetent hospitalized patient who experienced cholecystitis likely received an excess of the infectious dose of *Cryptosporidium*, having fallen into a manure pit while rescuing calves.

Direct contact with calves was linked epidemiologically to illness. Among 20 ill persons, only two did not report direct calf contact. These two patients had both washed themselves at the farm using water that might have been contaminated with *Cryptosporidium* oocysts. Only 15 of 33 firefighters were asked about pond water exposure because that question was added to the interview tool after interviews had begun. Five of nine firefighters who reported pond water exposure became ill. Although other gastrointestinal pathogens might have contributed to the symptoms experienced by some of the firefighters, the fact that *Cryptosporidium* was found in stool specimens from three of six firefighters tested suggests that *Cryptosporidium* was the primary cause of the outbreak.

General prevention and control measures for *Cryptosporidium* include (1) practicing proper hygiene (e.g., thorough hand washing, not swimming while experiencing diarrhea, and minimizing contact with animal feces); (2) treating or avoiding contaminated water (e.g., not swallowing water while

swimming and not drinking untreated water); (3) exercising caution while traveling; and (4) avoiding fecal exposure during sexual activity.^{1,4} *Cryptosporidium* is a chlorine-tolerant organism and is not inactivated readily by alcohol-based hand sanitizers.

Although occupationally acquired cryptosporidiosis has been reported among veterinary personnel,^{5,6} this is the first report of cryptosporidiosis transmitted during a firefighting response. To prevent similar outbreaks, adequate drinking water during firefighting responses and decontamination of firefighting equipment are recommended. Firefighters should only consume treated or bottled water, or sports drinks. Firefighting equipment and clothing should be decontaminated at the scene whenever possible, especially if grossly contaminated with feces, to reduce transmission of *Cryptosporidium*, *Giardia*, and other zoonotic enteric pathogens (e.g., *E. coli*, *Salmonella*, and *Campylobacter*). Clothing contaminated with feces should be machine-washed and heat-dried on the

highest clothes dryer heat setting for 30 minutes whenever possible⁷; all other non—machine-washable items and equipment should be cleaned with soap and water to remove gross fecal contamination, air-dried, and left in the sun for at least 4 hours after drying. For equipment that cannot be cleaned with soap and water or equipment that contacts the mouth (e.g., respirator pieces), soaking in 3% hydrogen peroxide solution for 20 minutes is recommended after consulting manufacturer guidelines.⁷

Acknowledgments

Karen Griffith, Kim Brown, Branch-Hillsdale-St. Joseph Community Health Agency, Coldwater; Jordan Assenmacher, Joan Rose, PhD, Michigan State Univ; Jennie Finks, DVM, Corinne Miller, PhD, Bur of Disease Control, Prevention, and Epidemiology, James Rudrik, PhD, Bur of Laboratories, Michigan Dept of Community Health. Jothikumar Narayanan, PhD, Amy Kahler, MS, Jonathan Yoder, MSW, MPH, National Center for Emerging and Zoonotic Infectious Diseases; Jevon McFadden, MD, Office of Surveillance and Public Health Preparedness; Sheryl Lyss, MD, Betsy Cadwell, MSPH, Office of Surveillance, Epidemiology, and Laboratory Services, CDC.

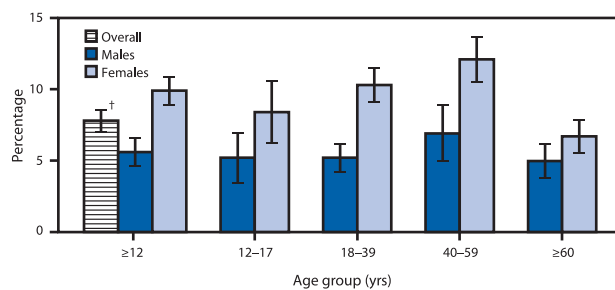
REFERENCES

7 Available.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Prevalence of Current Depression* Among Persons Aged ≥12 Years, by Age Group and Sex — United States, National Health and Nutrition Examination Survey, 2007–2010



* Current depression was determined based on responses to the Patient Health Questionnaire, which asks about symptoms of depression during the preceding 2 weeks. Depression was defined by a score of ≥10 out of a possible total score of 27.
 † 95% confidence interval.

Nearly 8% of persons aged ≥12 years (6% of males and 10% of females) report current depression. Females have higher rates of depression than males in every age group. Males aged 40–59 years have higher rates of depression (7%) than males aged ≥60 years (5%). Females aged 40–59 years have higher rates of depression (12%) than females aged 12–17 years (8%) and females aged ≥60 years (7%).

Source: National Health and Nutrition Examination Survey data, 2007–2010. Available at <http://www.cdc.gov/nchs/nhanes.htm>.

MMWR. 2012; 60:1747

©2012 American Medical Association. All rights reserved.