



GASTROINTESTINAL ILLNESS IN CHILDREN'S RESIDENT CAMPS: OUTBREAK PREVENTION AND CONTROL MEASURES

The Colorado Department of Public Health and Environment (Department) developed these guidelines to provide children's resident camps (camps) in Colorado with useful information about gastrointestinal (GI) illness that can occur in camp settings. The guidelines describe the causes of GI illness, how it is spread, what constitutes a GI illness outbreak, and GI illness outbreak prevention and control measures. **According to State Board of Health regulations, any type of illness outbreak must be reported to CDPHE or a local public health agency within 24 hours.**

To report an outbreak or for general disease prevention and control questions, please contact:

CDPHE Communicable Disease Epidemiology Program: (303) 692-2700 (after-hours/weekends (303) 370-9395)

CDPHE Communicable Disease Epidemiology Program Website:

http://www.cdphe.state.co.us/dc/Epidemiology/dc_guide.html

Local Public Health Agency: _____

It is important to recognize that each camp must meet the minimum requirements of the Department of Human Services' 7.701 *General Rules for Child Care Facilities* and 7.711 *Rules Regulating Children's Camps*, and the Department's *Rules and Regulations Governing the Health and Sanitation of Child Care Facilities in the State of Colorado* (health regulations). While Department of Human Services' rules address safety concerns within the operation, the health regulations address the health and sanitation.

For questions regarding the rules and regulations pertaining to camps, please contact:

CDPHE Consumer Protection Division: (303) 692-3620

CDPHE Consumer Protection Division Regulation Website: <http://www.cdphe.state.co.us/regulations/consumer/>

Colorado Department of Human Services - Division of Child Care: (303) 866-5958 or (800) 799-5876

Local Public Health Agency: _____

What Causes GI Illness?

GI illness can be caused by organisms such as viruses, bacteria, or parasites. Depending on the organism causing the illness, people may experience stomach cramping, fever, vomiting, and/or diarrhea for several hours up to several weeks. GI illness caused by norovirus (often referred to as the "stomach flu") is a common cause of outbreaks in camp settings. The incubation period for norovirus (the time from exposure to the virus to symptom onset) is typically 12 to 48 hours, and affected persons typically have symptoms consisting of diarrhea, vomiting, low-grade fever, and/or stomach cramps for one to two days. High fevers (temperatures greater than 101°F) or bloody diarrhea are **NOT** symptoms of norovirus, and may indicate a more serious GI illness. These guidelines apply primarily to outbreaks of norovirus. Control measures for outbreaks caused by other organisms may be different and would be outlined by the Department or the local public health agency assisting the camp.

How is GI Illness Spread?

In order to cause GI illness, the organism must be ingested (swallowed). This can occur when someone eats or drinks contaminated food or water, or through spread from one person to another. People infected with norovirus shed the virus in their feces before symptoms develop and for several days to several weeks after their illness has resolved. Small amounts of feces (not visible) containing the organism can contaminate hands and surfaces, and can be swallowed by someone else and cause illness. The virus is also present in vomit and can spread short distances through the air when a person vomits. Norovirus is very contagious because it takes a very small amount of virus to make a person ill. One of the best ways to prevent spreading GI illness is through good handwashing using warm water, soap, and paper towels. A diagram outlining the proper handwashing method is included in this document. Both ill and well persons should wash their hands thoroughly and often, especially after using the restroom and before eating. Ill persons should not prepare or handle any food for others.

Camps can be especially vulnerable to GI illness outbreaks. Campers often reside in close living quarters like tents or dormitories and participate in a variety of activities, which can allow for easy transmission of organisms

from person-to-person. There is a potential for decreased personal hygiene among campers, especially in rustic camping settings where there is little or no running water for toilets, showers, or handwashing. Also, campers may be reluctant to report their illness or go to the health center when ill for fear of missing camp activities.

What Constitutes a GI Illness Outbreak?

Occasional occurrences of GI illness in campers and staff are expected and do not necessarily mean an outbreak is occurring. The following circumstances may indicate an outbreak, and the Department or the local public health agency must be notified immediately if one or more occur:

- Several people become ill around the same time with similar symptoms. For example: campers housed in a common unit, or who use a common restroom, or consume a common meal become ill with vomiting and/or diarrhea around the same time.
- The number of people with GI illness steadily increases over a period of several days.
- More people have GI illness than the camp typically experiences.
- Campers or staff have severe symptoms, such as bloody diarrhea, high fevers, severe dehydration, illness lasting greater than two days, or illness requiring hospitalization.

Public health agencies can assist camps experiencing an outbreak by trying to identify the source and cause of the illness, preventing further spread of the illness, and addressing public concern. When a camp reports a possible outbreak to the Department or their local public health agency, the agency will review the symptoms, onset dates and times, where the ill persons reside, activities that have been occurring at camp, and control measures that have been implemented. Depending on the situation, the Department or the local public health agency may inspect the camp, including the residence areas, restrooms, kitchen, and swimming areas, and review health center logs. Camps should complete the attached GI illness outbreak surveillance form as soon as an outbreak of GI illness is suspected.

GI Illness Outbreak Prevention and Control Measures:

The following outbreak prevention and control measures are good practices for camps to follow at all times. Many of these measures are requirements of the regulations. Specific outbreak control measures should be implemented as soon as an increase in the number of cases of GI illness is recognized. In the event of an outbreak, these measures may need to be in place for several weeks or longer. Additional measures may be implemented with guidance from public health, depending on the organism causing the illness and the size of the outbreak, in order to prevent further spread of the illness. In general, camps experiencing an outbreak should clean, sanitize, and disinfect more frequently throughout the camp, especially in the restrooms, health center, drinking fountains, and areas commonly touched, such as doorknobs and handrails.

Note about Sanitizers and Disinfectants

Throughout this document, different concentrations of antimicrobial/antiviral compounds are mentioned. Sanitizers are moderate strength solutions intended for routine use on surfaces where food is prepared or served. The most commonly used sanitizer is a solution containing one tablespoon of unscented household bleach mixed with one gallon of water.

Disinfectants are stronger solutions intended for routine use on surfaces contaminated with high hazard body fluids, such as blood, feces, urine, vomit, sputum, and mucus. The most commonly used disinfectant is a solution containing a quarter cup (1/4 cup) of unscented household bleach mixed with one gallon of water.

This document mentions yet a stronger bleach and water solution, referred to as a 10% household bleach solution (one cup of unscented household bleach mixed with nine cups of water). This strong concentration is necessary to denature certain viruses, particularly norovirus, which is often the cause of large outbreaks. The Department or local public health agencies may require camps to use this strong concentration during an outbreak.

Camp Administration

- **At the beginning of each camp season, all staff should be trained on basic illness prevention measures and policies established per this guidance document.**

- Camps should establish an ill camper policy. The policy should address the screening and exclusion guidelines presented in the “Ill Camper and Staff” section below.
- It is strongly recommended that the camp establish an ill employee policy. The policy should address reporting of illness, especially vomiting and diarrhea, by staff to management; exclusion and/or modifying the duties of ill staff; and monitoring well staff for symptoms. Establishing an ill employee policy is especially important for food handlers.
- Camps should establish a contingency plan that addresses mass illness outbreaks.
 - This plan should include measures to exclude, house, monitor, and care for large numbers of ill campers and staff.
 - Ensure that the designated areas for ill campers and staff have adequate ventilation and climate controls; beds, cots, or mats and linens for large numbers of ill persons; and access to toilets and lavatory facilities.
- In an outbreak situation, schedule a meeting with all staff to review the situation and outbreak control measures.
- If an outbreak occurs, notify parents picking-up or dropping-off campers of the outbreak. The Department or the local public health agency can assist in developing letters and/or fact sheets depending on the circumstances of the outbreak.

Handwashing

- **Handwashing is the single most effective means of controlling the spread of communicable disease.**
- Encourage all campers and staff to practice proper handwashing, especially before meals and after using the restroom. Refer to the health regulations for detailed information on when and how to properly wash hands. Post signs throughout the camp that remind people to wash their hands. A sample handwashing sign is attached.
- Ensure all handwashing facilities are supplied with soap and paper towels. An option for supplying soap at sinks is placing a bar of soap in a nylon sock and tying the sock to the sink or faucet fixture. The soap can be lathered through the nylon.
- Staff should monitor young campers’ handwashing for thoroughness.
- If handwashing facilities are limited, consider adding temporary facilities, staggering groups of campers at available facilities, or set a handwashing schedule to ensure all campers have an opportunity to wash their hands. If temporary facilities are added, they must provide a continuous flow of water (such as a large beverage cooler with a spigot) and wastewater must be collected and disposed in a sanitary sewer. Soap and paper towels must be provided at temporary facilities. Using buckets of standing water to dip hands into is **NOT** an acceptable temporary handwashing facility.
- Hand sanitizing gels or wipes can be used in rustic or remote wilderness camping settings if handwashing facilities are not available. These products are not as effective against some GI viruses as proper handwashing, so proper handwashing should occur when possible.

Food Service

- **Child care facilities, including children’s resident camps, are subject to the requirements of the Department’s *Retail Food Establishment Rules and Regulations*, with exemptions under certain conditions specified in the health regulation.**
- Exclude food handlers and cafeteria staff ill with GI symptoms from work until at least 48 hours after diarrhea and vomiting have ceased, even if they are feeling well sooner. Food handled or prepared by an ill person must be thrown away immediately.
- The menu should not be comprised of foods or preparation steps that pose greater risk of foodborne illness transmission. For example, foods containing raw or undercooked animal products should not be served.
- Whenever possible, foods should be prepared just before service, handled minimally, and protected during storage, preparation, and service.
- Food temperatures shall be maintained below 41°F or above 135°F during storage, display, and service.
- Single use gloves are required when handling ready-to-eat foods (foods that will not be further washed or cooked) if utensils cannot be used.

- Food preparation areas shall be restricted to authorized personnel. Campers should be restricted from entering food preparation areas unless they are authorized to do so.
- Ensure the handwashing measures described in the above “Handwashing” section are followed before campers and staff eat.
- Food service shall be designed so that foods and utensils are handled by a minimal number of individuals. Food plated by trained, authorized food handlers is the best way to control the spread of foodborne illness. If a buffet line is used, foods shall be protected with sneeze guards and dispensed with utensils. Family-style service (where a large batch of food is placed on dining tables and campers serve themselves) should be monitored by staff, limited to small groups of campers, and food should be dispensed with a serving utensil. Campers should not utilize their own eating utensils to serve or plate food.
- In the event of an outbreak, discontinue family-style service and self-service bars (like salad and sandwich bars) where campers serve themselves.

Ill Campers and Staff

- Upon arrival at camp, all campers should be screened for recent or current symptoms of illness, such as fever, vomiting, and diarrhea. Campers with symptoms of a communicable illness, especially GI illness, shall be excluded from well campers until they can be assessed by the health center.
- Campers ill with diarrhea and/or vomiting should not return to their unit and should be excluded from well campers until their symptoms have resolved for 48 hours. The following outbreak prevention and control measures should be followed:
 - If possible, parents/guardians should pick up ill campers.
 - Ill campers should be housed in the health center or other designated area.
 - If possible, ill campers should avoid eating in the dining room with well campers.
 - If possible, ill campers should use restroom facilities separate from those used by well campers.
 - Ill campers should not participate in water sports or group activities with well campers until their symptoms have resolved for 48 hours. It is recommended that the camp have alternative activities available for ill campers.
- Employees shall be in good health and free from communicable disease while caring for children, preparing food for campers and staff, or employed in any capacity where there is a likelihood of disease transmission to others at the facility.
- Staff ill with diarrhea and/or vomiting should limit contact with campers and must not prepare or serve food for others until their symptoms have resolved for 48 hours.
- Exclude food handlers and cafeteria staff ill with diarrhea and/or vomiting from work until at least 48 hours after diarrhea and vomiting have ceased, even if they are feeling well sooner.
- Staff should use single-use gloves when caring for people who are sick with vomiting and/or diarrhea. Gloves should be changed and hands should be washed before caring for each person. Camps should have an adequate supply of gloves available throughout the camp for staff to use in the event of an outbreak.
- Depending on the situation, the Department or the local public health agency may recommend collecting stool or vomit specimens from ill campers and staff for laboratory testing to try to determine the organism causing of the illness.

Health Center Management and Record Keeping

- Immunization records or exemptions are required to be onsite for all campers.
- Camps should have a policy in place to track campers’ allergies, medications, and special needs. Medications are required to be properly stored and labeled as required by the health regulations. A nurse or nurse delegate is required to administer medications. The nurse delegate must be properly trained to administer the medications. The administration of all medication should be documented.
- Camps must maintain incident and health center visit logs to document and monitor illnesses and injuries. Logs should include at a minimum the date, time, name, living unit, and the nature of the visit.

- In the event of an outbreak, develop and maintain a list of ill campers and staff. This list should include the following information (a sample list is included in these guidelines):

<input type="checkbox"/> Name	<input type="checkbox"/> Age	<input type="checkbox"/> Sex
<input type="checkbox"/> Camper or staff	<input type="checkbox"/> Unit/dorm/tent	<input type="checkbox"/> Symptom onset date/time
<input type="checkbox"/> Symptoms	<input type="checkbox"/> Symptom duration (hours)	<input type="checkbox"/> Specimens collected
<input type="checkbox"/> Treatment/action (treatment provided, went home, etc.)	<input type="checkbox"/> Job duties (for staff)	

Drinking Water and Wastewater

- Camps are required to provide adequate, safe, and potable drinking water. Camps that rely on well water are required to adequately and continuously treat the water and verify through bacteriological samples taken at a minimum of once per quarter, or at a frequency determined by the Department, that the water is safe and potable. Based on the size and population served, additional measures may be required. Contact your local public health agency or the Department's Water Quality Control Division at (303) 692-3500 to determine if your system is or needs to be established as a non-community water supply system.
- Camps that are not connected to a municipal sewer system and that rely on onsite wastewater treatment must maintain their wastewater systems and monitor for signs of failure.
- During backpacking excursions where drinking water is obtained from surface water sources, groups must be provided with water treatment systems. Treatment systems must be designed to filter water to one micron. The water must then be treated with iodine or boiled for ten minutes to assure potability.

Water Recreation

- Swimming pools and natural swimming areas are required to comply with the Department *Swimming Pool and Mineral Bath Regulations*. These regulations govern pool design, water chemistry and quality, and sampling for natural swim areas.
- Ill campers and staff should not wade or swim in recreational waters or swimming pools until their symptoms have resolved for 48 hours.

Restrooms

- Restrooms must be clean and well maintained. Surfaces are required to be disinfected following contamination with high hazard body fluids (blood, feces, urine, vomit, sputum, and mucus). Disinfection can be accomplished with a quarter cup of household bleach per gallon of water, or an equivalent hospital grade disinfectant.
- In the event of an outbreak, different disinfection techniques may be required by the Department and/or the local public health agency.

Bedding

- Mattresses, mats, and pads are required to be covered with impervious, easily cleanable materials. Cots must be constructed of easily cleanable materials. Covers for mats and mattresses and bedding are required to be laundered between uses by different children or at least once per week if used by the same camper. Mattress and cot covers that cannot be laundered shall be cleaned and sanitized between uses by different children or at least once per week if used by the same camper.
- Mattress covers soiled with vomit or feces should be removed and promptly cleaned and disinfected or discarded.

Vomit and Fecal Accident Clean Up

- The following procedure should be used to clean a vomit or fecal accident. Ideally, camps should maintain separate supplies (such as buckets) for cleaning these types of accidents, and refrain from using supplies that are used for routine cleaning.
 - 1) Clean areas soiled with vomit or feces promptly after the accident occurs.
 - 2) Cordon off the area where the accident occurred until it is cleaned.
 - 3) At a minimum, the person cleaning should wear disposable single-use gloves. Disposable masks, aprons, and eye shields may also be worn if they are available.

- 4) Begin by spraying the soiled area with a 10% household bleach solution (one cup of unscented household bleach mixed with nine cups of water). This is stronger than the concentration used for routine disinfection. Quaternary ammonia-based disinfectants are **NOT** effective against norovirus.
 - 5) Use disposable cloths, paper towels, or an absorbent material to soak up the vomit or feces.
 - 6) Transfer the cloths, paper towels, or absorbent material along with any solid material into a trash bag.
 - 7) Using a disposable cloth, clean the soiled area with warm soapy water.
 - 8) Once clean, spray the affected area again with a 10% household bleach solution and allow the area to air-dry.
 - 9) After the affected area has been cleaned, supplies used to clean the accident (such as buckets) should be sprayed with a 10% household bleach solution and allowed to air-dry.
 - 10) Place the gloves, apron, mask, cleaning cloths, and paper towels in the trash bag and dispose of the bag in a trash receptacle.
 - 11) The person cleaning the affected area should thoroughly wash his/her hands when finished.
- If the accident occurs outdoors or in an area that is not easily cleaned, attempt to remove as much vomit or feces as possible by the method described above. When outdoors, the affected area can be covered with soil or ground cover after removing as much vomit or feces as possible.
 - If a person vomits or has a fecal accident in the dining hall, clean the affected area as indicated above. Food contact surfaces and dining tables near the accident should be sprayed with a 10% household bleach solution and then rinsed with clean water. Food that was in the area when the accident occurred should be thrown away.
 - Handle linens, sleeping bags, and clothing soiled with vomit or feces as little as possible. These items should be laundered with detergent in hot water (at least 140°F) at the maximum cycle length and then machine dried on the highest heat setting. If there are no laundry facilities onsite capable of reaching 140°F, soiled items should be double bagged (using plastic bags) and taken offsite for proper washing and drying. If soiled items are sent home, instruct parents or caregivers of the proper washing and drying procedures.

THE

**STOP
DISEASE**

METHOD OF HANDWASHING

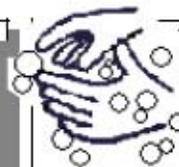
Young children may need supervision and assistance when washing their hands



Moisten hands with **WARM RUNNING WATER**



Apply **SOAP**; **WASH** until a soapy **LATHER** appears



Continue for at **LEAST 10 SECONDS**;
Wash all surfaces:
Between fingers, under nails and jewelry, backs of hands and wrists



RINSE until hands are free of dirt and soap



DRY hands with a **DISPOSABLE PAPER TOWEL** or **MECHANICAL DRYER**