

## Hygiene on the Trail

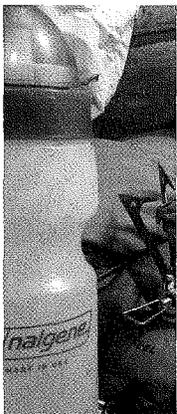
**N**o doubt you are used to seeing those helpful reminders in eating establishments: "Employees must wash hands after using the rest room," or words to that effect. This is very good advice, and not only for employees. It has been known since before the germ theory that poor

hand hygiene is an important cause of disease. As the sciences of microbiology and public health developed, we learned how this worked. The organisms that cause a lot of human disease live in the intestines. These bugs can infect others when they inadvertently consume fecal material from individuals with disease. I apologize to the sensitive reader—there is simply no delicate way to express this concept!

How does such fecal consumption occur? Drinking water that is contaminated with waste is one such mechanism. Cholera epidemics such as those currently ravaging Haiti are a great example of this. This is an extremely efficient way of transmitting disease, and has caused an enormous amount of human misery.

Fortunately, water-borne disease has virtually disappeared in the developed world. Indeed, the universal availability of safe drinking water may have done more to improve health than anything medicine has accomplished in the past century.

The other mechanism is more "personal," yet also effective. In the process of "cleaning up" after defecation, one may be left with microscopic (or larger) pieces of organism-containing feces on the hands. These can then be passed to others through food handling, touching structures (think bathroom doorknobs), etc.



Historically, this is the way in which "Typhoid Mary" spread disease in New York; today, it is the way in which passengers on cruise ships become ill.

How does this relate to the backcountry? Intestinal infections (such as giardiasis) have long been recognized in users of the wilderness. Most hikers worry about water quality, and there is a dizzying array of technology to treat their water.

This has led a number of outdoor educators to join me in promoting attention to hand hygiene among campers. Up until now, however, our rantings about this topic were based on conjecture, not data.

A few colleagues and I have just published a study in a scientific journal, *The American Journal of Infection Control* (March 2012; while not likely to be carried by your neighborhood library, your librarian can probably help access it), which we hope will move us toward greater recognition of this problem.

The field work for this research, largely done by one of my medical students with an interest in wilderness medicine, involved obtaining samples from campers in the Adirondacks. I suspect that some readers of this column may kindly have agreed to a saline hand wash between Adirondak Loj and Marcy Dam!

These samples were analyzed by a microbiologist and an infectious disease expert. The results of this study should give us all pause. Nearly a third of the individuals we studied had bacteria on their hands that were fecal in origin. While these bacteria

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themselves may not be causes of disease, they are worrisome as unmistakable markers of poor hand hygiene.

What are we to do with this information? Return to the first paragraph of this column. Thorough hand cleaning after defecation and before food handling or preparation must become the norm at Lake Colden just as it is in the Loj kitchen. It is profoundly silly for campers to worry about contracting disease from stream water while not worrying a whit about reaching into the group trail snack bag after using the privy! This is best accomplished with old-fashioned soap and water; plain soap can be used in a perfectly acceptable, environmentally sensitive manner. Alternatively, there are a host of alcohol-based hand gels which are more convenient and probably effective. Soap or gel has no moving parts, is light to carry, and is an important tool for backcountry hygiene.



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