

## Panter: Tricky Purell

By [Michaela Panter](#)

Wednesday, November 17, 2010

### **THE MYTH:** using hand sanitizer prevents illness

Did you just use Purell? That is, right after you grabbed this paper but before you started on your Raisin Bran? Hand sanitizers are now everywhere at Yale, particularly at dining hall entrances, where staff practically command you to sanitize before eating. The rationale behind this hand gel seems straightforward: it's supposed to kill 99.9 percent of common illness-causing germs and is much more convenient than heading to a sink. But does Purell really reduce your chances of getting sick?

Alcohol-based hand sanitizers are effective against bacteria and certain viruses, including hepatitis B, herpes, and HIV. But when you're heading to the dining hall, these bugs probably aren't your primary concern. It's the more germane and mundane viruses — stomach viruses, the flu, and the common cold — that may make for an unpleasant after-dinner guest. And unfortunately, the efficacy of Purell's 62 percent alcohol in killing these specific viruses is controversial at best.

In fact, Purell won't defend you very well at all against stomach viruses. Emory University's Dr. Christine Moe has demonstrated that liquid soap or even water alone is more effective than hand sanitizer at combating the virus that commonly causes "stomach flu," which spreads quickly in confined quarters like a residential college. Moe observed up to a 96 percent reduction in stomach flu cases after washing with soap and/or water, as compared to a 54 percent reduction after sanitizer use.

Why is this the case, if Purell effectively disables more frightening bugs, like herpes and HIV? These viruses are enclosed in an envelope that helps them infect host cells but also makes them more susceptible to the drying effects of alcohol. In contrast, stomach viruses and the cold virus, which are non-enveloped, are more alcohol-resistant. Dr. James Arbogast of GOJO Industries, the company that invented Purell, suggests that a sanitizer made of 70 percent alcohol might inactivate stomach viruses more effectively, but such high-concentration sanitizers aren't in common use; the Purell in your college's dining hall is eight percent lower in alcohol.

While research suggests that stomach viruses can survive hand sanitizer, it's less clear whether alcohol-based gels fend off the flu or the common cold. The University of Virginia's Dr. Ronald Turner found that sanitizer users and old-fashioned soap-and-water users are infected with the flu and cold at an equal rate. Based on these results, Turner believes that hand-to-hand and hand-to-object contact is unlikely to spread these illnesses, which may be more contagious via air. So you may be more at risk when your dinner companion coughs than when you serve yourself coffee after a Purell-averse fellow Yalie. While Turner's results are compelling, his sample size was small and the study isn't published yet, so the jury's still out on whether hand sanitizer is effective against cold and flu.

### **THE TRUTH:**

Hand sanitizers like Purell reduce your chances of bacterial and certain viral infections. But these alcohol-based gels aren't as effective as traditional soap and water against the pathogens that usually make you sick, like stomach viruses. It's also uncertain whether sanitizers combat flu and cold viruses, so a combination of hand-washing and avoiding uncovered coughs and sneezes is probably your safest option.

*Michaela Panter is a fourth-year graduate student in the Department of Immunobiology.*