

Hand Sanitizer Satisfaction Protocol

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Introduction

We are executing a multi-step research project to understand the causes of illness at Swarthmore and to find effective and economical public health interventions. To this end, we are presently exploring the use of alcohol-based hand sanitizers to prevent low-level upper-respiratory infection epidemics.

This study's purpose is to research what kind of hand sanitizer should be bought by Swarthmore College as a part of Swat Clean Hands' efforts to improve hand hygiene on campus. The study is important because hand sanitizers come in a variety of formulations which may affect long-term usage rates.

We hypothesize that the primary factors affecting long-term usage of a hand sanitizer product are dispenser placement, advertising & education, predetermined feelings about hand hygiene in general and hand sanitizers in particular, and the incidence of "side-effects" like dryness or an unpleasant residue after usage.

Since we wish to maximise long-term usage, we think it prudent to try to pick the right formulation for the Swarthmore population by measuring some hypothesized indicators of long-term usage like how satisfied users express themselves to be with each product, how dry users' hands feel after usage, and whether the product leaves an unpleasant residue on the hands.

After measuring the Swarthmore community's hand-sanitizer preference, we intend to continue our project by gathering baseline prevalence data in both the Swarthmore and Haverford communities to support future tests of the effectiveness of our interventions (e.g. of a campus-wide installation of hand sanitizer dispensers at Swarthmore).

Overview & Setup

We propose to study these indicators from a table located at the main entrance of the Sharples Dining Hall between the peak traffic times of 11:20 - 11:50 AM and 12:20 - 12:50 PM for the duration of a week. From this table, we will invite passing students to review a hand sanitizer formulation.

We will encourage students to participate through several media:

- Most prominently with the phrase:
 - "Would you please try this hand sanitizer and answer a few questions about it?"
- With a sign announcing our study, perhaps reading "SCH Hand Sanitizer Study".
- With a bag or bowl of individually-wrapped candy which we will offer to anyone passing by.

When a passing student agrees to participate, we will ask them to use a hand sanitizer. Then we'll provide them with a numbered, dated response sheet and a complimentary pen so that they can answer our questions. We'll collect the data and analyze it as described below.

Design Decisions

We have decided to use a stratified design, suggested to us by Walter Stromquist, which randomly assigns one treatment to each five-minute block of observations so that each student who consents to participate in the same hour-aligned five-minute block will receive the same treatment.

This design is the best available because it preserves the simplicity of testing a single treatment each day (which should reduce coding errors compared with a fully random assignment of treatments to subjects) while still controlling for temporal and experiential biases in the subject population like the fully randomized design.

Finally, on the advice of our adviser, Prof. O'Connell, we will use unmarked dispensers so that our subjects will respond to the properties of the hand sanitizer formulation and dispenser themselves rather than to the brand name of the hand sanitizer being tested.

Measurements

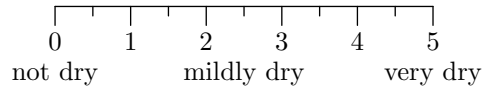
We want to measure satisfaction and the incidence of side-effects like dryness or residue.

Therefore, we propose to ask the following questions, to be answered by circling responses or by writing in responses on a printed form.

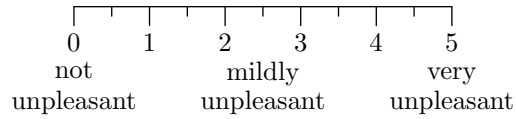
Please specify your gender.

Male Female Other

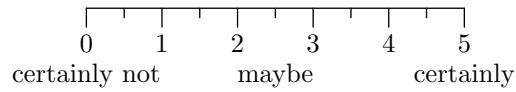
1. How dry does the hand sanitizer leave your hands?



2. How unpleasant is any residue left on your hands?



3. Would you use this hand sanitizer if it were readily available?



4. How do your hands feel after using this hand sanitizer?

Analysis

We will analyze the data to determine Swarthmore's preferences for hand sanitizer formulations.

Risks to Participants

Hand sanitizers are in widespread commercial use, are well-tolerated, and are indicated for general use "among persons who need immediate protection after touching contaminated surfaces" or who "work in a setting in which infectious disease transmission is likely." [Larson, 2001]. They may cause open cuts to sting, and perhaps could remove ink on someone's hand, but pose little other danger when used topically. They are flammable, but Sharples is a non-smoking building with no open flames near the test site.

Since we will be anonymously gathering non-personal data, there is minimal risk to the privacy of the participants.

Ultimately, we believe that these risks are more than outweighed by the benefit of the study, which advances an important public health agenda that promises to substantially improve the health of the entire Swarthmore campus community.

References

For more detailed information about the efficacy of alcohol-based hand sanitizers for hand antisepsis, their benefits in relation to other hand antisepsis procedures, the costs of upper respiratory infections in university settings, or the effect of introducing alcohol-based hand sanitizers on illness rates, please consult the following references.

Boyce, John M and Didier Pittet. 2002. "Guideline for Hand Hygiene in Health-care Settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force". *Infection Control and Hospital Epidemiology*, Vol. 23, No. 12 (Suppl.), pp. S3-S40.

Larson, Elaine. March, 2001. "Hygiene of the Skin: When is Clean Too Clean?". *Emerging Infectious Diseases*, Vol. 7, No. 2, pp. 225-229.

Nichol, Kristin, Sarah D'Heilly, and Edward Ehlinger. 2005. "Colds and Influenza-Like Illnesses in University Students: Impact on Health, Academic and Work Performance, and Health Care Use." *Clinical Infectious Diseases*, 40 (1 May): 1263-1270.

White, Cindy, et al. 2003. "The effect of hand hygiene on illness rate among students in university residence halls." *American Journal of Infection Control*, 31 (6): 364-370.