Sanitation in the Residence Hall Bathrooms

John Cotter (Actuarial Science), Nate Sauer (Mechanical Engineering), Camneil Daly (Biology), Connor Darling (Biomedical Engineering), and Louis Sarro (Biomedical Engineering)
Advisor: Professor Jill Rulfs (Biology) and Helen Vassallo (Management)

Abstract

- A common problem on college campuses is the rampant spread of infectious diseases, and illness in the communal residence hall bathrooms.
- Products such as hand sanitizer and anti-bacterial metal finish for bathroom doors, will lower the rate of illness and improve student health.

Introduction

- Students health suffers nationally at college. The heart of this problem is in residence hall bathrooms.
- The failure to wash one’s hands leads to the harboring of illness in high traffic areas such as bathroom doors.
- Bathroom doors require your hands to exit. This allows transfer of bacteria to those who do wash their hands.
- A secondary source of sanitation, such as Purell or Microban, would improve the health of students.
- Attendance rates, and therefore grades, suffer from poor student health.

Need and Approach

- Need: To address the problems with current sanitary conditions in the residence hall bathrooms that may be contributing to student illness.
- Approach: Investigate current bathroom cleaning policy, implement a survey to find student need, and research an effective and cost efficient way to improve sanitation.

Methods

Survey: To assess student need, we surveyed 439 people, from every grade, and every residence hall.

Bacteria Cultures: We swabbed the doors of each residence hall bathrooms to check for bacteria.

Interview: We contacted Tom Moreau to learn about current cleaning policy.

Research: Looked into possible solutions.

1st Solution: Purell
- Kills 99.999% of most common germs.
- Uses 100% naturally renewable, plant-derived ethanol (Green Product).

2nd Solution: Microban
- After day of application, most bacteria eliminated.
- Better for preservation, not human health.

Results

Survey Results:
- 20% of students report that they DON’T ALWAYS wash their hands.
- 76% of the bathrooms require you to touch the handle as you exit.
- 52% of students report that the feel they have gotten sicker while living in residence halls.

Get hand sanitizer?

Cost Results

<table>
<thead>
<tr>
<th></th>
<th>Purell</th>
<th>Microban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost:</td>
<td>$18,580 per year</td>
<td>$3.99 per gallon</td>
</tr>
<tr>
<td>Additional $3.21 to tuition</td>
<td>Covers all important surfaces</td>
<td></td>
</tr>
<tr>
<td>Bi-weekly refills</td>
<td>One-time application</td>
<td></td>
</tr>
</tbody>
</table>

Bacteria Cultures

Left Side: Doors before cleaning
- Daniels Hall
- Institute Hall
- Morgan Hall
- Sanford Riley Hall
- Stoddard Complex

Right Side: Door after cleaning

Conclusions/Recommendations

- There is currently no problem in the school's sanitation methods.
- The problem lies in the lack of student hand-washing.
- As a solution, we recommend the use of Purell.
  - More effective than Microban
  - High return on investment.
  - Future action.
  - Availability in more than just residence halls.

Acknowledgments

- Thank you Professor Rulfs for providing us with the materials to culture bacteria.
- Thank you to Tom Moreau for partaking in an interview informing us on current sanitation policy in residence hall bathrooms.

References