Abstract
Various surfaces in the WPI freshman residence hall bathrooms were tested for bacteria. Ways to reduce bacteria counts were explored.

Background
- Common surfaces in public restrooms contain:
  - *Staphylococcus aureus* \(^1\)
  - *Escherichia coli* \(^1\)
  - Fecal bacteria of the genus *Enterococcus*, known to cause urinary tract and wound infections.\(^2\)
- Nationally, only 85% of people wash their hands after using the bathroom.\(^3\)
- At WPI, only 73% of freshmen wash their hands after using the bathroom.

Need
To minimize the risk of pathogen transmission between students through contact with bathroom surfaces

Approach
- Test WPI freshman residence hall bathroom surfaces to determine the amount of bacteria
- Conduct a survey to find prevalence of disease and perceptions of bathroom surfaces
- Create a hands-free door opening prototype

Results
- Survey predictions of MOST to LEAST bacteria:
  1. Sink Faucet Handle (42.4%)
  2. Door Handle (38.8%)
  3. Garbage Can Flap (16.4%)
  4. Paper Towel Dispenser (1.81%)
- Actual order of MOST to LEAST bacteria:
  1. Paper Towel Dispenser
  2. Garbage Can Flap
  3. Sink Faucet Handle
  4. Door Handle

Recommendations
- Method for drying hands: Automatic paper towel dispenser
- Garbage: Remove garbage flap
- Sink: Replace faucet handles with wrist blade handles
- Door: Install door opening device

Acknowledgments
Thank you to Jack Ferraro for his assistance and generosity in helping us to build our door opening prototype.

References