



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.

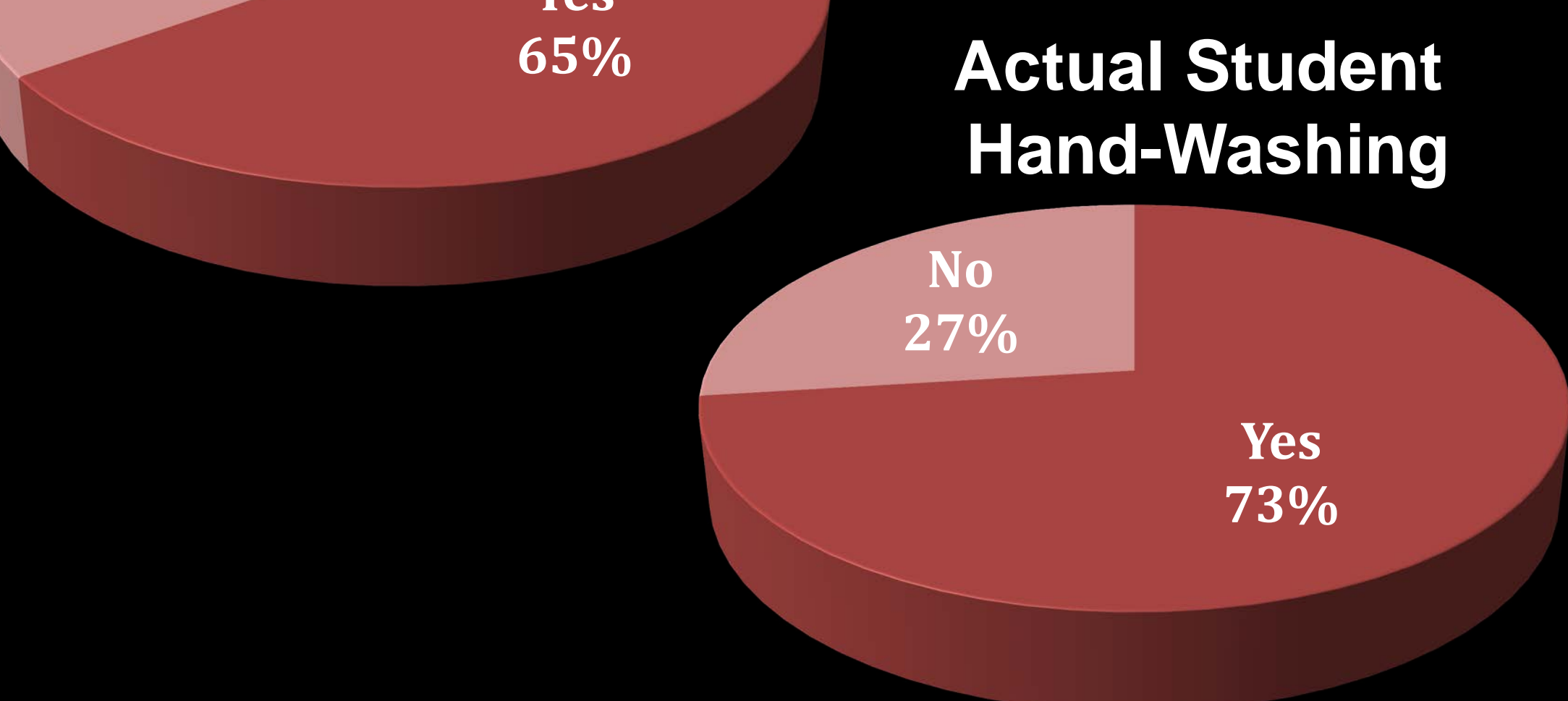
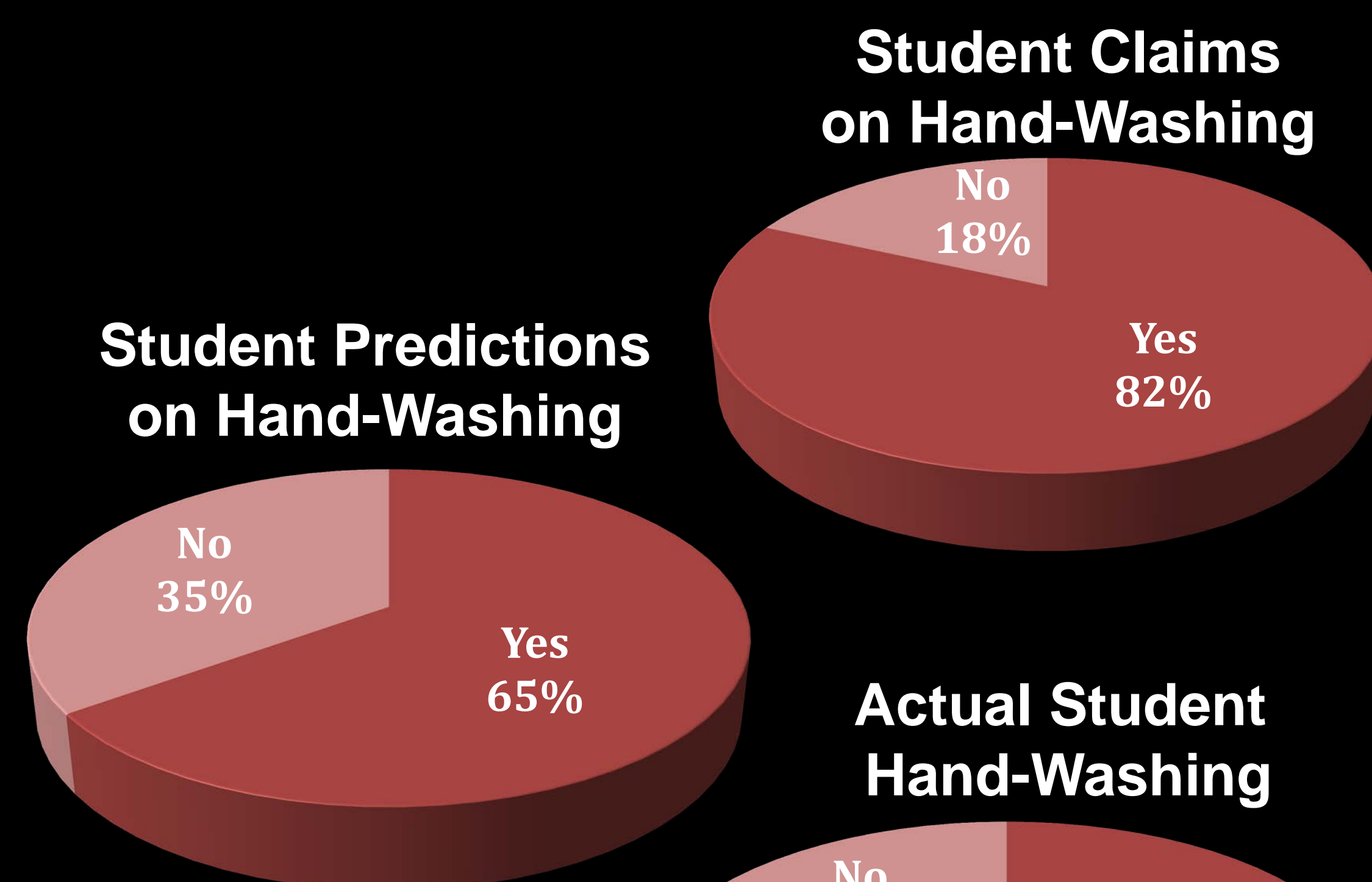
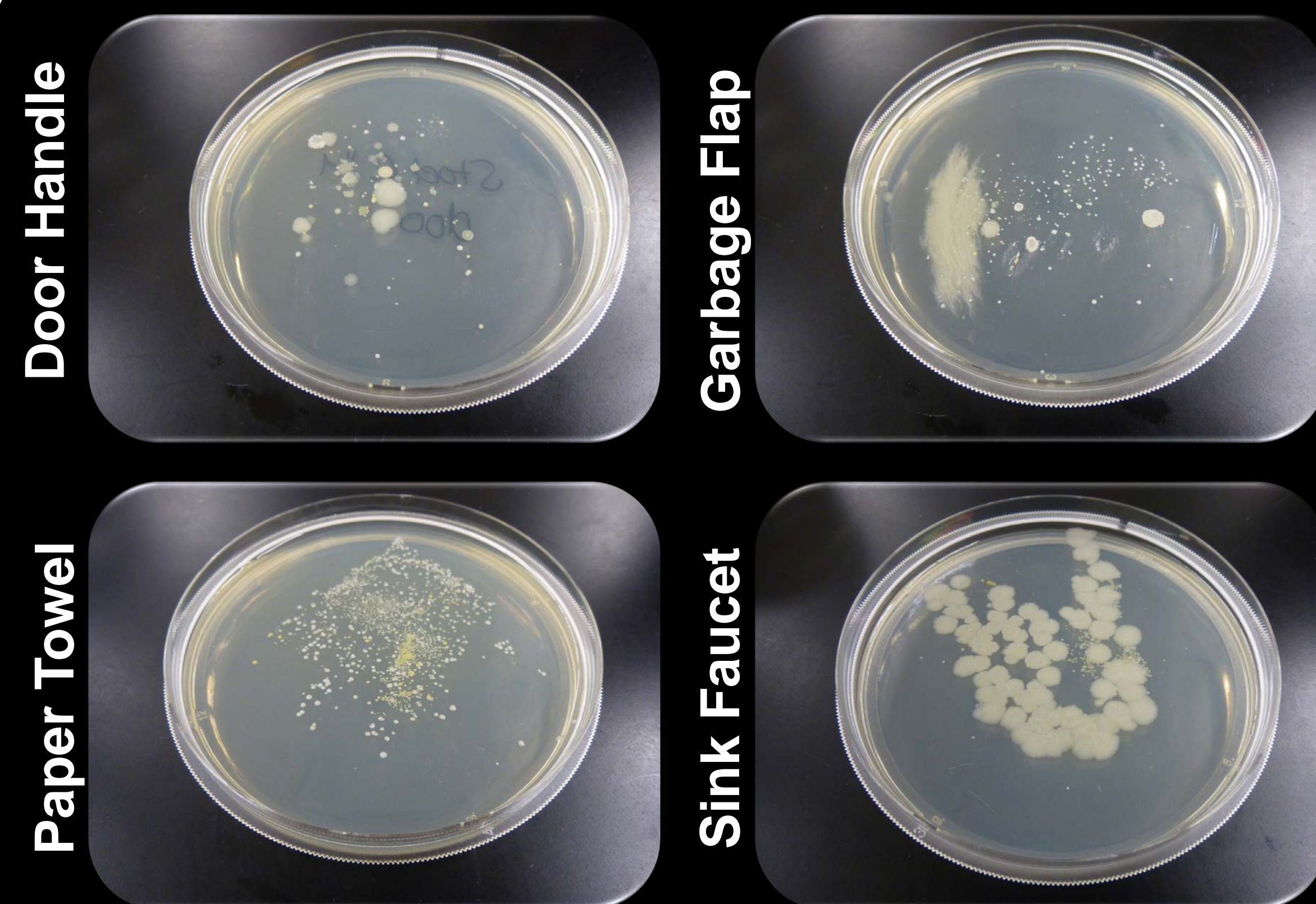
Need

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

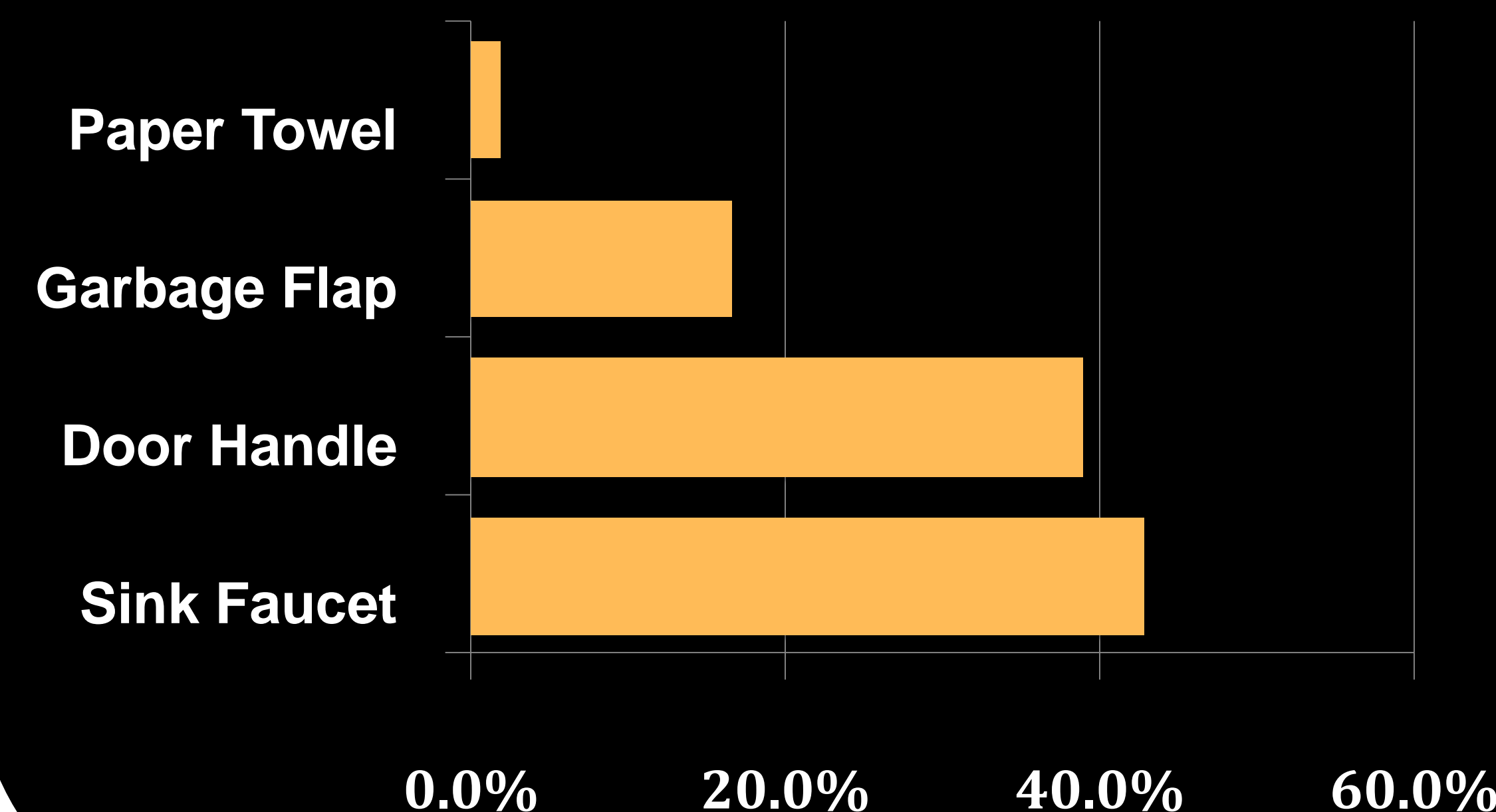
Approach

- 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

Data



Student Predictions for Surface Bacteria Counts



Results

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

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References

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