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# Introduction

Bacteria is found in high concentrations in built environments. Out of all rooms in a built environment, it has been found that bathrooms contain a higher concentration of bacteria than any other room due to bathrooms being a less ventilated room and a much more moist environment. (Ojima *et al.*, 2002) Research has shown that the highest concentration of bacteria in residential homes are found in moist areas such as bathroom sinks. (Rusin *et al.*, 1998) Human occupancy and human contact can have an affect on the community of the microbiome of a surface area. (Ramos and Stephens, 2014)

This research is important because we spend most of our time indoors and especially in our homes. Being constantly exposed to the bacteria in our homes or public places can greatly influence our health. By knowing how much bacteria is in a certain place we come into close contact with, such as bathroom or restroom sinks, we can then find ways of reducing any contamination that could lead to possible illness.

# Methods

## Field Sampling

## Culture and Dilution Plates

## DNA Extraction

## Qubit Analysis

## PCR

## Gel Electrophoresis

## Sanger Sequencing

## Data Analysis

# Results



**Figure 1:** Boxplot of colony abundances at different sites, 10x dilution. Despite a higher median number of colonies from Personal Bathroom samples, the mean numbers of colonies were not significantly different between the two sites. (Wilcox p = 0.35).

|  |  |  |  |
| --- | --- | --- | --- |
| statistic | p.value | method | alternative |
| 7 | 0.3536785 | Wilcoxon rank sum test with continuity correction | two.sided |



**Figure 2:** Boxplot showing the number of morphotypes from the two different sites, 100x dilution. There was no difference in the mean number of morphotypes (Wilcox p=0.1).

|  |  |  |  |
| --- | --- | --- | --- |
| statistic | p.value | method | alternative |
| 9 | 0.1 | Wilcoxon rank sum test | two.sided |



# Discussion

# Sources Cited

Ojima,M. *et al.* (2002) Hygiene measures considering actual distributions of microorganisms in japanese households. *Journal of applied microbiology*, **93**, 800–809.

Ramos,T. and Stephens,B. (2014) Tools to improve built environment data collection for indoor microbial ecology investigations. *Building and Environment*, **81**, 243–257.

Rusin,P. *et al.* (1998) Reduction of faecal coliform, coliform and heterotrophic plate count bacteria in the household kitchen and bathroom by disinfection with hypochlorite cleaners. *Journal of Applied Microbiology*, **85**, 819–828.