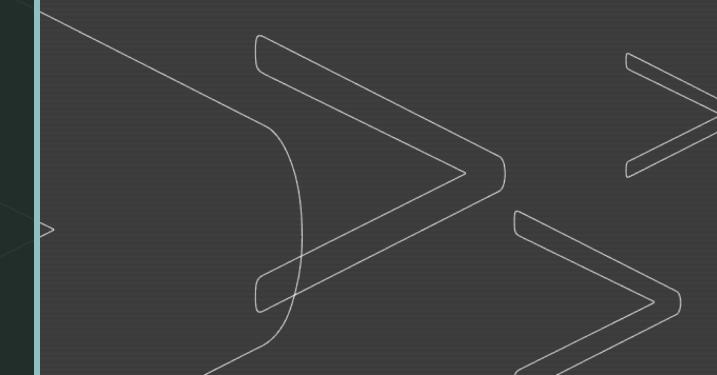


MicroPower- Plus

Formerly known as Team PublixPower



What are power and effect size?



Power: Ability to detect a statistically significant difference between groups



Effect size: Magnitude of difference between two groups



Power is related to effect size and sample size

The larger the effect size the less power you need (can use fewer samples)
The smaller the effect size the more power you need (need to use more samples)

What is effect size in microbiome research?



Researchers often want to know if there are distinct communities present between groups



A PERMANOVA can be used to calculate the statistical significance of community differences

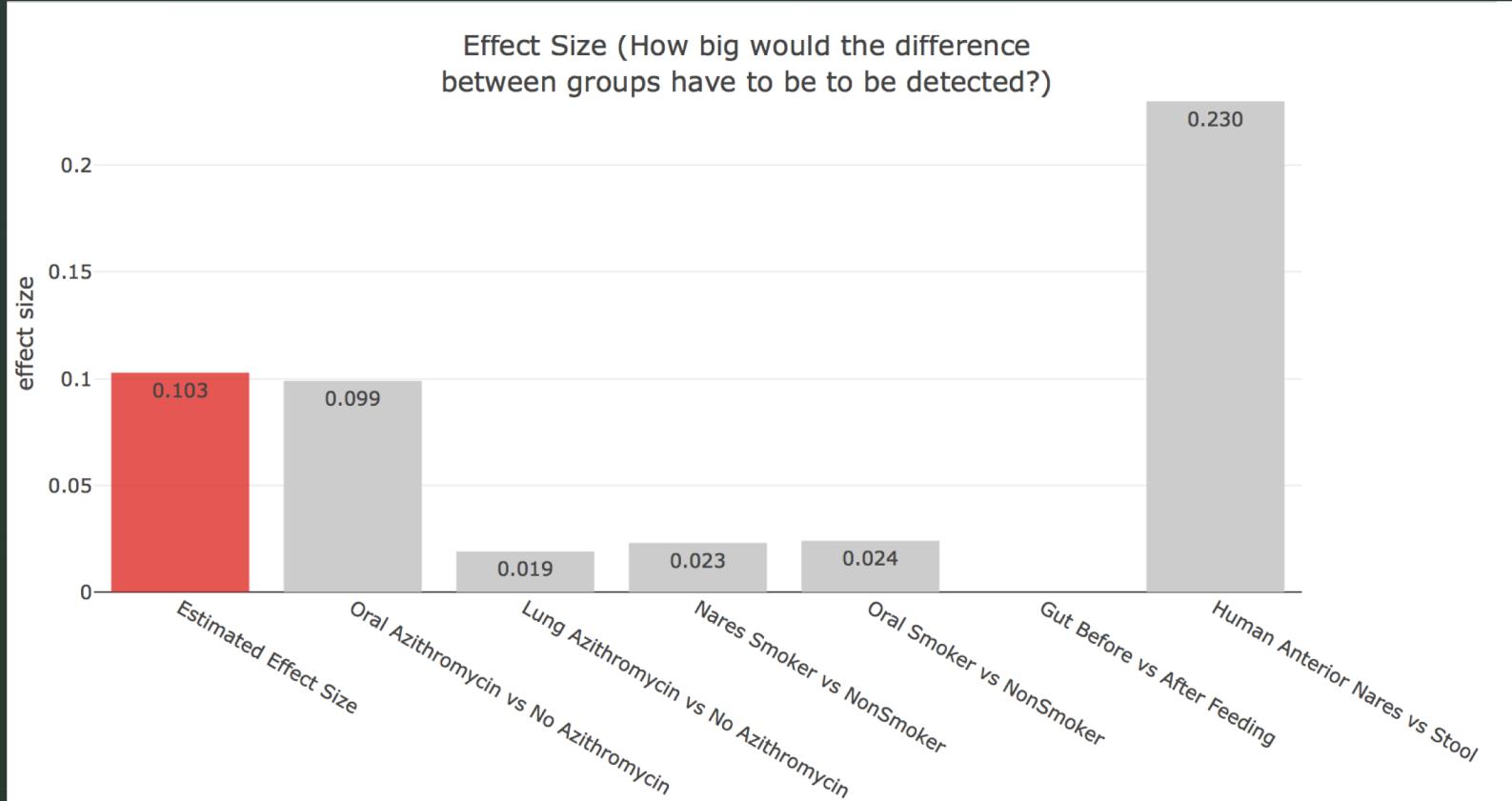
Effect size is the percent of the variation explained by the grouping factor (the experimental variable)

Why is knowing the power and effect size important?

Knowing the likely effect size tells you if your experiment has enough samples to be successful

Power calculations are now a **REQUIREMENT** for microbiome-study funding applications from primary funding agencies

Compare estimated effect sizes to reported effect sizes to
determine if sample size is large enough to detect
expected effect size



What we did



Added a biologist-friendly user interface to the R package *MicroPower*



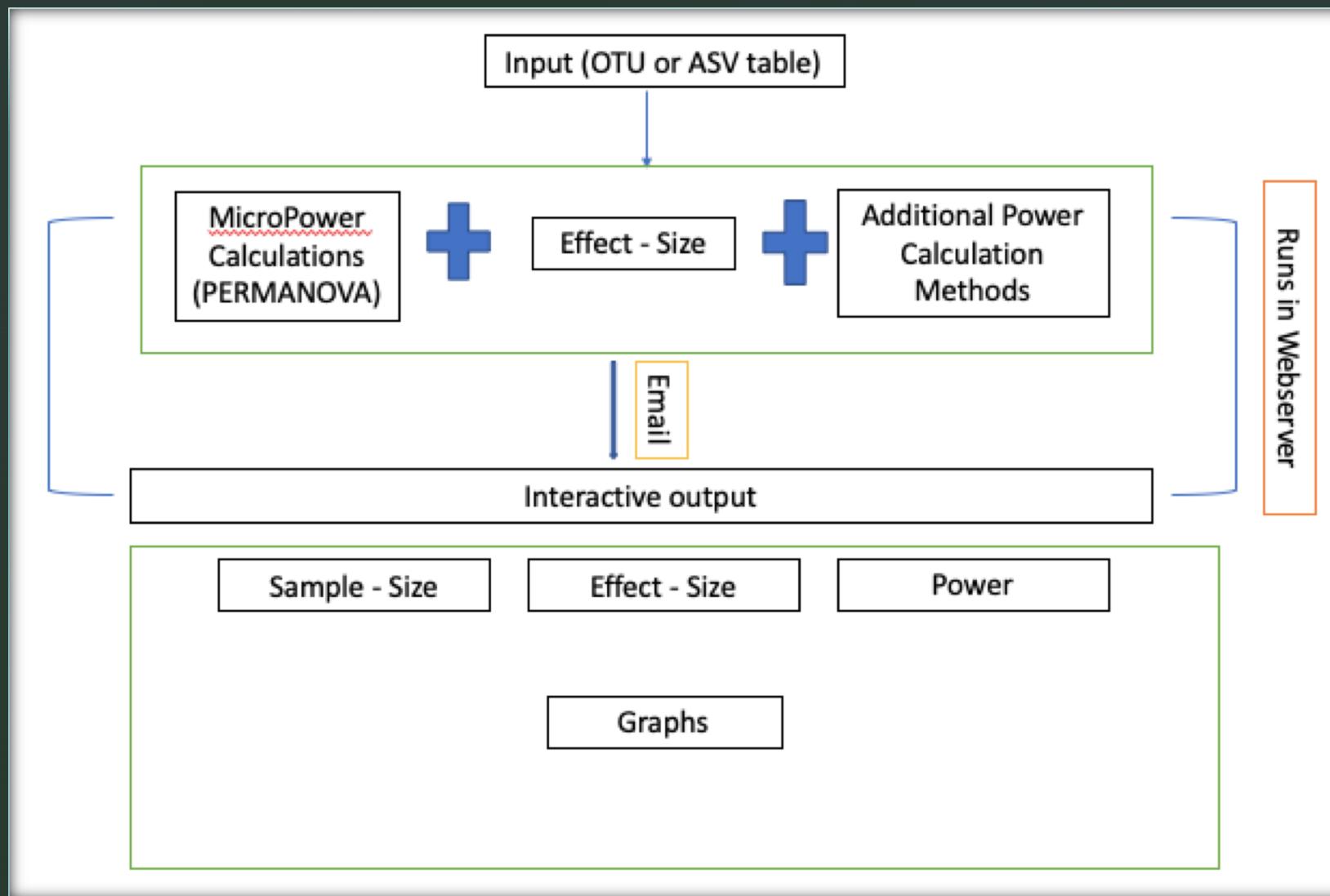
MicroPower allows user to estimate power and calculate effect sizes



This allows people not familiar with coding or the R language to:

Quickly calculate the power needed for their experiment
Calculate the effect size from their experiment

What we did



The team



Omkar Dokur: User interface



Vyoma Sheth: User interface



Francesca Prieto: Literature research and visualizations



Xiangyun (Sherry) Liao: Effect-size calculation



Samira Jahangiri: Reference-data wrangler



Jenna Oberstaller: Conceptualization, supervisor, chief documentor



Justin Gibbons: Conceptualization, supervisor, calculations